

SEQUENCE LISTING

<110> OLSON, ERIC N.
WANG, DA-ZHI

<120> METHODS AND COMPOSITIONS RELATING TO A CARDIAC-SPECIFIC
NUCLEAR REGULATORY FACTOR

<130> UTSD:695US

<140> UNKNOWN

<141> 2001-12-21

<150> 60/257,761

<151> 2000-12-21

<160> 32

<170> PatentIn Ver. 2.1

<210> 1

<211> 4959

<212> DNA

<213> Mus musculus

<220>

<221> CDS

<222> (641)..(3061)

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<120> METHODS AND COMPOSITIONS RELATING TO A CARDIAC-SPECIFIC
NUCLEAR REGULATORY FACTOR

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<141> 2001-12-14

<150> 60/257,761

<151> 2000-12-21

<160> 32

<170> PatentIn Ver. 2.1

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<221> CDS

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Gln Met Ala Phe Asp His Tyr Ala Asn Asp Ser Asp Glu His Leu Glu			
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Val Leu Leu Asn Ser His Ser Pro Ile Gly Lys Val Ser Asp Val Thr			
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Leu Leu Lys Ile Gly Ser Glu Glu Pro Pro Phe Asp Ser Ile Met Asp			
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Gly Phe Pro Gly Lys Ala Ala Glu Asp Leu Phe Ser Ala His Glu Leu			
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Leu Pro Gly Pro Leu Ser Pro Met His Ala Gln Leu Ser Pro Pro Ser			
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Thr Met Glu Trp Leu Asp Leu Thr Pro Pro Ser Ser Thr Pro Gly Phe			
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Ser Asn Leu Thr Ser Ser Gly Pro Ser Ile Phe Asn Ile Asp Phe Leu			
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Asp Val Thr Asp Leu Asn Leu Asn Ser Pro Met Asp Leu His Leu Gln			
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<213> Mus musculus

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35 40 45

Gly Ser Thr Pro Asp Ile Lys Ser Thr Glu Ala Pro Leu Asp Thr Ile
50 55 60

Gln Asp Leu Thr Pro Gly Ser Glu Ser Asp Lys Asn Asp Ala Ala Ser
65 70 75 80

Gln Pro Gly Asn Gln Ser Asp Pro Gly Lys Gln Val Leu Gly Pro Leu
85 90 95

Ser Thr Pro Ile Pro Val His Thr Ala Val Lys Ser Lys Ser Leu Gly
100 105 110

Asp Ser Lys Asn Arg His Lys Lys Pro Lys Asp Pro Lys Pro Lys Val
115 120 125

Lys Lys Leu Lys Tyr His Gln Tyr Ile Pro Pro Asp Gln Lys Ala Glu
130 135 140

Lys Ser Pro Pro Pro Met Asp Ser Ala Tyr Ala Arg Leu Leu Gln Gln
145 150 155 160

Gln Gln Leu Phe Leu Gln Leu Gln Ile Leu Ser Gln Gln Gln Gln Gln
165 170 175

Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln
180 185 190

Arg Phe Ser Tyr Pro Gly Met His Gln Thr His Leu Lys Glu Pro Asn
195 200 205

Glu Gln Met Ala Arg Asn Pro Asn Pro Ser Ser Thr Pro Leu Ser Asn
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Thr Pro Leu Ser Pro Val Lys Asn Ser Ile Ser Gly Gln Thr Gly Val
225 230 235 240

Ser Ser Leu Lys Pro Gly Pro Leu Pro Pro Asn Leu Asp Asp Leu Lys
245 250 255

Val Ser Glu Leu Arg Gln Gln Leu Arg Ile Arg Gly Leu Pro Val Ser
260 265 270

Gly Thr Lys Thr Ala Leu Val Asp Arg Leu Arg Pro Phe Gln Asp Cys

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Phe	Tyr	His	Phe	Gly	Ser	Thr	Ser	Ser	Ser	Pro	Pro	Ile	Ser	Pro	Ala	
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Ser	Ser	Asp	Leu	Ser	Ala	Ala	Gly	Ser	Leu	Pro	Asp	Thr	Phe	Thr	Asp	
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Ala	Ser	Pro	Gly	Phe	Gly	Leu	His	Ala	Ser	Pro	Val	Pro	Ala	Cys	Thr	
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Asp	Glu	Ser	Leu	Leu	Ser	Ser	Leu	Asn	Gly	Gly	Ser	Gly	Pro	Ser	Glu	
370					375					380						
Pro	Asp	Gly	Leu	Asp	Ser	Glu	Lys	Asp	Lys	Met	Leu	Val	Glu	Lys	Gln	
385					390					395					400	
Lys	Val	Ile	Asn	Gln	Leu	Thr	Trp	Lys	Leu	Arg	Gln	Glu	Gln	Arg	Gln	
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Val	Glu	Glu	Leu	Arg	Met	Gln	Leu	Gln	Lys	Gln	Lys	Ser	Ser	Cys	Ser	
420					425					430						
Asp	Gln	Lys	Pro	Leu	Pro	Phe	Leu	Ala	Thr	Thr	Ile	Lys	Gln	Glu	Asp	
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Gly	His	Ser	Ser	Asp	Ser	Pro	Pro	Pro	Ala	Cys	Glu	Thr	Ala	Gln	Leu	
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Leu	Pro	His	Cys	Val	Glu	Ser	Ser	Gly	Gln	Thr	His	Val	Leu	Ser	Ser	
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Thr	Phe	Leu	Ser	Pro	Gln	Cys	Ser	Pro	Gln	His	Ser	Pro	Leu	Gly	Gly	
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Leu	Lys	Ser	Pro	Gln	His	Ile	Ser	Leu	Pro	Pro	Ser	Pro	Asn	Asn	His	
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Tyr	Phe	Leu	Ala	Ser	Ser	Ser	Gly	Ala	Gln	Arg	Glu	Asn	His	Gly	Val	
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Ser	Ser	Pro	Ser	Ser	Ser	Gln	Gly	Cys	Ala	Gln	Met	Thr	Gly	Leu	Gln	
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Ser	Ser	Asp	Lys	Val	Gly	Pro	Thr	Phe	Ser	Ile	Pro	Ser	Pro	Thr	Phe	

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Ser	Lys	Ser	Ser	Ser	Ala	Val	Ser	Asp	Ile	Thr	Gln	Pro	Pro	Ser	Tyr
			580					585					590		
Glu	Asp	Ala	Val	Lys	Gln	Gln	Met	Thr	Arg	Ser	Gln	Gln	Met	Asp	Glu
		595					600						605		
Leu	Leu	Asp	Val	Leu	Ile	Glu	Ser	Gly	Glu	Met	Pro	Ala	Asp	Ala	Arg
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Glu	Asp	His	Ser	Cys	Leu	Gln	Lys	Ile	Pro	Lys	Ile	Pro	Gly	Ser	Ser
625					630					635					640
Cys	Ser	Pro	Thr	Ala	Ile	Pro	Pro	Lys	Pro	Ser	Ala	Ser	Phe	Glu	Gln
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Ala	Ser	Ser	Gly	Gly	Gln	Met	Ala	Phe	Asp	His	Tyr	Ala	Asn	Asp	Ser
			660					665					670		
Asp	Glu	His	Leu	Glu	Val	Leu	Leu	Asn	Ser	His	Ser	Pro	Ile	Gly	Lys
	675						680					685			
Val	Ser	Asp	Val	Thr	Leu	Leu	Lys	Ile	Gly	Ser	Glu	Glu	Pro	Pro	Phe
	690					695					700				
Asp	Ser	Ile	Met	Asp	Gly	Phe	Pro	Gly	Lys	Ala	Ala	Glu	Asp	Leu	Phe
705					710					715					720
Ser	Ala	His	Glu	Leu	Leu	Pro	Gly	Pro	Leu	Ser	Pro	Met	His	Ala	Gln
				725					730					735	
Leu	Ser	Pro	Pro	Ser	Val	Asp	Ser	Ser	Gly	Leu	Gln	Leu	Ser	Phe	Thr
		740						745					750		
Glu	Ser	Pro	Trp	Glu	Thr	Met	Glu	Trp	Leu	Asp	Leu	Thr	Pro	Pro	Ser
	755						760					765			
Ser	Thr	Pro	Gly	Phe	Ser	Asn	Leu	Thr	Ser	Ser	Gly	Pro	Ser	Ile	Phe
	770					775					780				
Asn	Ile	Asp	Phe	Leu	Asp	Val	Thr	Asp	Leu	Asn	Leu	Asn	Ser	Pro	Met
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aga agg agc ttg gag cgg gcc agg aca gag gac tat ctc aaa cgg aag	97
Arg Arg Ser Leu Glu Arg Ala Arg Thr Glu Asp Tyr Leu Lys Arg Lys	
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Ile Arg Ser Arg Pro Glu Arg Ser Glu Leu Val Arg Met His Ile Leu	
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Glu Glu Thr Ser Ala Glu Pro Ser Leu Gln Ala Lys Gln Leu Lys Leu	
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Lys Arg Ala Arg Leu Ala Asp Asp Leu Asn Glu Lys Ile Ala Gln Arg	
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Pro Gly Pro Met Glu Leu Val Glu Lys Asn Ile Leu Pro Val Glu Ser	
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Ser Leu Lys Glu Ala Ile Ile Val Gly Gln Val Asn Tyr Pro Lys Val	
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Ala Asp Ser Ser Ser Phe Asp Glu Asp Ser Ser Asp Ala Leu Ser Pro	
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Glu Gln Pro Ala Ser His Glu Ser Gln Gly Ser Val Pro Ser Pro Leu	
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Glu Ala Arg Val Ser Glu Pro Leu Leu Ser Ala Thr Ser Ala Ser Pro	
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Thr Gln Val Val Ser Gln Leu Pro Met Gly Arg Asp Ser Arg Glu Met	
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Leu Phe Leu Ala Glu Gln Pro Pro Leu Pro Pro Pro Pro Leu Leu Pro	
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Glu	Val	Val	Val	Ala	Thr	Val	Ala	Ser	Ser	Gly	Val	Val	Lys	Phe	Gly	
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agc	acg	ggc	tcc	acg	ccc	ccc	gtg	tct	ccc	acc	ccc	tcg	gag	cgc	tca	1393
Ser	Thr	Gly	Ser	Thr	Pro	Pro	Val	Ser	Pro	Thr	Pro	Ser	Glu	Arg	Ser	
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ctg	ctc	agc	acg	ggc	gat	gaa	aac	tcc	acc	ccc	ggg	gac	acc	ttt	ggt	1441
Leu	Leu	Ser	Thr	Gly	Asp	Glu	Asn	Ser	Thr	Pro	Gly	Asp	Thr	Phe	Gly	
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Glu	Met	Val	Thr	Ser	Pro	Leu	Thr	Gln	Leu	Thr	Leu	Gln	Ala	Ser	Pro	
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Leu	Gln	Ile	Leu	Val	Lys	Glu	Glu	Gly	Pro	Arg	Ala	Gly	Ser	Cys	Cys	
				500					505					510		
ctg	agc	cct	ggg	ggg	cgg	gcg	gag	cta	gag	ggg	cgc	gac	aag	gac	cag	1585
Leu	Ser	Pro	Gly	Gly	Arg	Ala	Glu	Leu	Glu	Gly	Arg	Asp	Lys	Asp	Gln	
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Met	Leu	Gln	Glu	Lys	Asp	Lys	Gln	Ile	Glu	Ala	Leu	Thr	Arg	Met	Leu	
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Arg	Gln	Lys	Gln	Gln	Leu	Val	Glu	Arg	Leu	Lys	Leu	Gln	Leu	Glu	Gln	
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Glu	Lys	Arg	Ala	Gln	Gln	Pro	Ala	Pro	Ala	Pro	Ala	Pro	Leu	Gly	Thr	
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ccc	gtg	aag	cag	gag	aac	agc	ttc	tcc	agc	tgc	cag	ctg	agc	cag	cag	1777
Pro	Val	Lys	Gln	Glu	Asn	Ser	Phe	Ser	Ser	Cys	Gln	Leu	Ser	Gln	Gln	
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ccc	ctg	ggc	ccc	gct	cac	cca	ttc	aac	ccc	agc	ctg	gcg	gcc	cca	gcc	1825
Pro	Leu	Gly	Pro	Ala	His	Pro	Phe	Asn	Pro	Ser	Leu	Ala	Ala	Pro	Ala	
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Thr	Asn	His	Ile	Asp	Pro	Cys	Ala	Val	Ala	Pro	Gly	Pro	Pro	Ser	Val	
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<212> PRT

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<400> 4

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Arg	Ser	Arg	Pro	Glu	Arg	Ser	Glu	Leu	Val	Arg	Met	His	Ile	Leu	Glu
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Glu	Thr	Ser	Ala	Glu	Pro	Ser	Leu	Gln	Ala	Lys	Gln	Leu	Lys	Leu	Lys
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	65				70					75					80
Gly	Pro	Met	Glu	Leu	Val	Glu	Lys	Asn	Ile	Leu	Pro	Val	Glu	Ser	Ser
			85					90						95	
Leu	Lys	Glu	Ala	Ile	Ile	Val	Gly	Gln	Val	Asn	Tyr	Pro	Lys	Val	Ala
		100					105						110		
Asp	Ser	Ser	Ser	Phe	Asp	Glu	Asp	Ser	Ser	Asp	Ala	Leu	Ser	Pro	Glu

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Phe Leu Ala Glu Gln Pro Pro Leu Pro Pro Pro Pro Leu Leu Pro Pro 180 185 190		
Ser Leu Thr Asn Gly Thr Thr Ile Pro Thr Ala Lys Ser Thr Pro Thr 195 200 205		
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Ser Lys Lys Ala Lys Glu Leu Lys Pro Lys Val Lys Lys Leu Lys Tyr 225 230 235 240		
His Gln Tyr Ile Pro Pro Asp Gln Lys Gln Asp Arg Gly Ala Pro Pro 245 250 255		
Met Asp Ser Ser Tyr Ala Lys Ile Leu Gln Gln Gln Gln Leu Phe Leu 260 265 270		
Gln Leu Gln Ile Leu Asn Gln Gln Gln Gln Gln His His Asn Tyr Gln 275 280 285		
Ala Ile Leu Pro Ala Pro Pro Lys Ser Ala Gly Glu Ala Leu Gly Ser 290 295 300		
Ser Gly Thr Pro Pro Val Arg Ser Leu Ser Thr Thr Asn Ser Ser Ser 305 310 315 320		
Ser Ser Gly Ala Pro Gly Pro Cys Gly Leu Ala Arg Gln Asn Ser Thr 325 330 335		
Ser Leu Thr Gly Lys Pro Gly Ala Leu Pro Ala Asn Leu Asp Asp Met 340 345 350		
Lys Val Ala Glu Leu Lys Gln Glu Leu Lys Leu Arg Ser Leu Pro Val 355 360 365		
Ser Gly Thr Lys Thr Glu Leu Ile Glu Arg Leu Arg Ala Tyr Gln Asp 370 375 380		
Gln Ile Ser Pro Val Pro Gly Ala Pro Lys Ala Pro Ala Ala Thr Ser 385 390 395 400		
Ile Leu His Lys Ala Gly Glu Val Val Val Ala Phe Pro Ala Ala Arg		

115 120 125
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 165 170 175
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<212> PRT

<213> Mus musculus

<400> 5

Leu Glu Lys Met Lys Val Ser Asp Leu Lys Gln His Leu Lys Arg Arg
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Pro Tyr Leu
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<220>

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gct gca caa ata cca act gct gcc ttg gcc tca ggc ttg gcc cca act 96
 Ala Ala Gln Ile Pro Thr Ala Ala Leu Ala Ser Gly Leu Ala Pro Thr
 20 25 30

gta cct cag aca caa gac acg ttc ccg cag cat gtg ctc agt cag cct 144
 Val Pro Gln Thr Gln Asp Thr Phe Pro Gln His Val Leu Ser Gln Pro
 35 40 45

caa caa gtc aga aag gtt ttc aca aac tca gca tca tca aat aca gtt 192
 Gln Gln Val Arg Lys Val Phe Thr Asn Ser Ala Ser Ser Asn Thr Val
 50 55 60

ctt cca tat cag aga cat cct gcc cca gct gtc cag cag ccc ttt atc 240
 Leu Pro Tyr Gln Arg His Pro Ala Pro Ala Val Gln Gln Pro Phe Ile
 65 70 75 80

aat aag gcc tcc aac agt gtt ctt caa tcc aga aat gct ccg ctt cca 288
 Asn Lys Ala Ser Asn Ser Val Leu Gln Ser Arg Asn Ala Pro Leu Pro
 85 90 95

tcc ctg caa aat gga cct aac aca ccc aac aag cct agt tca ccc ccg	336
Ser Leu Gln Asn Gly Pro Asn Thr Pro Asn Lys Pro Ser Ser Pro Pro	
100 105 110	
cca ccc cag caa ttt gtc gtc cag cac tct cta ttt ggg agt cca gtc	384
Pro Pro Gln Gln Phe Val Val Gln His Ser Leu Phe Gly Ser Pro Val	
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Ala Lys Thr Lys Asp Pro Pro Arg Tyr Glu Glu Ala Ile Lys Gln Thr	
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cgc agc aca cag gcc cct ctg cca gag att tcc aac gct cac agt cag	480
Arg Ser Thr Gln Ala Pro Leu Pro Glu Ile Ser Asn Ala His Ser Gln	
145 150 155 160	
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Gln Met Asp Asp Leu Phe Asp Ile Leu Ile Lys Ser Gly Glu Ile Ser	
165 170 175	
ctc ccc ata aaa gaa gaa cct tct cct att tcc aaa atg aga cca gtg	576
Leu Pro Ile Lys Glu Glu Pro Ser Pro Ile Ser Lys Met Arg Pro Val	
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aca gcc agc atc acc aca atg cca gtg aat aca gtg gtg tcc cgg cca	624
Thr Ala Ser Ile Thr Thr Met Pro Val Asn Thr Val Val Ser Arg Pro	
195 200 205	
cca ccc caa gtc caa atg gca cca cct gta tct tta gaa cct atg ggc	672
Pro Pro Gln Val Gln Met Ala Pro Pro Val Ser Leu Glu Pro Met Gly	
210 215 220	
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Ser Leu Ser Ala Ser Leu Glu Asn Gln Leu Glu Ala Phe Leu Asp Gly	
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Thr Leu Pro Ser Ala Asn Glu Ile Pro Pro Leu Gln Ser Ser Ser Glu	
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gac aga gag ccc ttc tct ctg atc gag gac ctc cag aat gat ctg ctg	816
Asp Arg Glu Pro Phe Ser Leu Ile Glu Asp Leu Gln Asn Asp Leu Leu	
260 265 270	
agt cac tca ggt atg ctg gac cat tca cac tca ccc atg gag act tcc	864
Ser His Ser Gly Met Leu Asp His Ser His Ser Pro Met Glu Thr Ser	
275 280 285	
gag acc cag ttt gct gca ggt act ccc tgt ctg tct ctc gac ctg tca	912
Glu Thr Gln Phe Ala Ala Gly Thr Pro Cys Leu Ser Leu Asp Leu Ser	
290 295 300	
gac tca aac ttg gac aac atg gag tgg ttg gac att acc atg ccc aac	960
Asp Ser Asn Leu Asp Asn Met Glu Trp Leu Asp Ile Thr Met Pro Asn	

100 105 110 115 120 125 130 135 140 145 150 155 160 165 170 175 180 185 190 195 200 205 210 215 220 225 230 235 240 245 250 255 260 265 270 275 280 285 290 295 300

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			20					25					30		
Val	Pro	Gln	Thr	Gln	Asp	Thr	Phe	Pro	Gln	His	Val	Leu	Ser	Gln	Pro
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Gln	Gln	Val	Arg	Lys	Val	Phe	Thr	Asn	Ser	Ala	Ser	Ser	Asn	Thr	Val
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Leu	Pro	Tyr	Gln	Arg	His	Pro	Ala	Pro	Ala	Val	Gln	Gln	Pro	Phe	Ile
65					70					75					80
Asn	Lys	Ala	Ser	Asn	Ser	Val	Leu	Gln	Ser	Arg	Asn	Ala	Pro	Leu	Pro
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Ser Leu Gln Asn Gly Pro Asn Thr Pro Asn Lys Pro Ser Ser Pro Pro
100 105 110

Pro Pro Gln Gln Phe Val Val Gln His Ser Leu Phe Gly Ser Pro Val
115 120 125

Ala Lys Thr Lys Asp Pro Pro Arg Tyr Glu Glu Ala Ile Lys Gln Thr
130 135 140

Arg Ser Thr Gln Ala Pro Leu Pro Glu Ile Ser Asn Ala His Ser Gln
145 150 155 160

Gln Met Asp Asp Leu Phe Asp Ile Leu Ile Lys Ser Gly Glu Ile Ser
165 170 175

Leu Pro Ile Lys Glu Glu Pro Ser Pro Ile Ser Lys Met Arg Pro Val
180 185 190

Thr Ala Ser Ile Thr Thr Met Pro Val Asn Thr Val Val Ser Arg Pro
195 200 205

Pro Pro Gln Val Gln Met Ala Pro Pro Val Ser Leu Glu Pro Met Gly
210 215 220

Ser Leu Ser Ala Ser Leu Glu Asn Gln Leu Glu Ala Phe Leu Asp Gly
225 230 235 240

Thr Leu Pro Ser Ala Asn Glu Ile Pro Pro Leu Gln Ser Ser Ser Glu
245 250 255

Asp Arg Glu Pro Phe Ser Leu Ile Glu Asp Leu Gln Asn Asp Leu Leu
260 265 270

Ser His Ser Gly Met Leu Asp His Ser His Ser Pro Met Glu Thr Ser
275 280 285

Glu Thr Gln Phe Ala Ala Gly Thr Pro Cys Leu Ser Leu Asp Leu Ser
290 295 300

Asp Ser Asn Leu Asp Asn Met Glu Trp Leu Asp Ile Thr Met Pro Asn
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Ser Ser Ser Gly Leu Thr Pro Leu Ser Thr Thr Ala Pro Ser Met Phe
325 330 335

Ser Ala Asp Phe Leu Asp Pro Gln Asp Leu Pro Leu Pro Trp Asp
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Gly Leu Ala Val Asn Gly Asn Lys Thr Glu Leu Gln Asp Arg Leu Gln
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Thr Ala Leu
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<213> Mus musculus

<400> 9

Leu Asp Asp Met Lys Val Ala Glu Leu Lys Gln Glu Leu Lys Leu Arg
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Ser Leu Pro Val Ser Gly Thr Lys Thr Glu Leu Ile Glu Arg Leu Arg
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Ala Tyr Gln
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<213> Mus musculus

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Arg Leu Ser Asp Lys Gly Leu Lys Ala Asp Leu Met Glu Arg Leu Gln
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Ala Ala Leu
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<213> Mus musculus

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Val Lys Lys Leu Lys Val Ser Glu Leu Lys Glu Glu Leu Lys Lys Arg
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Arg Leu Ser Asp Lys Gly Leu Lys Ala Glu Leu Met Glu Arg Leu Gln
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Ala Ala Leu
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Ala Ala Leu
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<213> Mus musculus

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Arg Leu Ser Asp Lys Gly Leu Lys Ala Asp Leu Met Asp Arg Leu Gln
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Ala Ala Leu
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<213> Mus musculus

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Gln Phe Leu
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Ala Ala Leu
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<400> 16
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Ala Ala Leu
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<210> 17
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<400> 17
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Gly Ala Leu
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<400> 18

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Gly Leu Ala Lys Ser Gly Gln Lys Ser Ala Leu Val Lys Arg Leu Lys
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Gly Ala Leu
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<210> 19

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<212> PRT

<213> Mus musculus

<400> 19

Leu Ser Glu Leu Arg Val Ile Asp Leu Arg Ala Glu Leu Lys Lys Arg
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Lys Ala Val
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<210> 20

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<212> PRT

<213> Mus musculus

<400> 20

Leu Ser Asp Leu Arg Val Ile Asp Leu Arg Ala Glu Leu Arg Lys Arg
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Asn Val Asp Ser Ser Gly Asn Lys Ser Val Leu Met Glu Arg Leu Lys
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Lys Ala Ile
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<213> Mus musculus

<400> 21

Val Arg Arg Leu Lys Val Asn Glu Leu Arg Glu Glu Leu Gln Arg Arg
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Ala Ala Leu
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Asn Tyr Val
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Gly Leu Ser Thr Thr Gly Val Lys Ala Val Leu Val Glu Arg Leu Glu
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Glu Ala Ile
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Gly Cys Thr Gly Gly Cys Gly Ala Gly Gly Thr Gly Gly Thr Gly Gly
1220 1225 1230

Thr Ala Gly Cys Cys Thr Thr Cys Cys Cys Ala Gly Cys Gly Gly Cys
1235 1240 1245

Cys Cys Gly Gly Cys Thr Gly Ala Gly Cys Ala Cys Gly Gly Gly Gly
1250 1255 1260

Cys Cys Ala Gly Cys Cys Cys Thr Gly Gly Thr Gly Gly Cys Ala Gly
1265 1270 1275 1280

Cys Ala Gly Gly Cys Cys Thr Gly Gly Cys Thr Cys Cys Ala Gly Cys
1285 1290 1295

Thr Gly Ala Gly Gly Thr Gly Gly Thr Gly Gly Thr Gly Gly Cys Cys
1300 1305 1310

Ala Cys Gly Gly Thr Gly Gly Cys Cys Ala Gly Cys Ala Gly Thr Gly
1315 1320 1325

Gly Gly Gly Thr Gly Gly Thr Gly Ala Ala Gly Thr Thr Thr Gly Gly
1330 1335 1340

Cys Ala Gly Cys Ala Cys Gly Gly Gly Cys Thr Cys Cys Ala Cys Gly
1345 1350 1355 1360

Cys Cys Cys Cys Cys Cys Gly Thr Gly Thr Cys Thr Cys Cys Cys Ala
1365 1370 1375

Cys Cys Cys Cys Cys Thr Cys Gly Gly Ala Gly Cys Gly Cys Thr Cys
1380 1385 1390

Ala Cys Thr Gly Cys Thr Cys Ala Gly Cys Ala Cys Gly Gly Gly Cys
1395 1400 1405

Gly Ala Thr Gly Ala Ala Ala Ala Cys Thr Cys Cys Ala Cys Cys Cys
1410 1415 1420

Cys Cys Gly Gly Gly Gly Ala Cys Ala Cys Cys Thr Thr Thr Gly Gly
1425 1430 1435 1440

Thr Gly Ala Gly Ala Thr Gly Gly Thr Gly Ala Cys Ala Thr Cys Ala
1445 1450 1455

Cys Cys Thr Cys Thr Gly Ala Cys Gly Cys Ala Gly Cys Thr Gly Ala
1460 1465 1470

Cys Cys Cys Thr Gly Cys Ala Gly Gly Cys Cys Thr Cys Gly Cys Cys
1475 1480 1485

Ala Cys Thr Gly Cys Ala Gly Ala Thr Cys Cys Thr Cys Gly Thr Gly
1490 1495 1500

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Cys Ala Cys Cys Cys Ala Thr Thr Cys Ala Ala Cys Cys Cys Cys Ala
1795 1800 1805

Gly Cys Cys Thr Gly Gly Cys Gly Gly Cys Cys Cys Cys Ala Gly Cys
1810 1815 1820

Cys Ala Cys Cys Ala Ala Cys Cys Ala Cys Ala Thr Ala Gly Ala Cys
1825 1830 1835 1840

Cys Cys Thr Thr Gly Thr Gly Cys Thr Gly Thr Gly Gly Cys Cys Cys
1845 1850 1855

Cys Gly Gly Gly Gly Cys Cys Cys Cys Cys Gly Thr Cys Cys Gly Thr
1860 1865 1870

Gly Gly Thr Gly Gly Thr Gly Ala Ala Gly Cys Ala Gly Gly Ala Ala
1875 1880 1885

Gly Cys Cys Thr Thr Gly Cys Ala Gly Cys Cys Thr Gly Ala Gly Cys
1890 1895 1900

Cys Cys Gly Ala Gly Cys Cys Gly Gly Thr Cys Cys Cys Cys Gly Cys
1905 1910 1915 1920

Cys Cys Cys Cys Cys Ala Gly Thr Thr Gly Cys Thr Thr Cys Thr Gly
1925 1930 1935

Gly Gly Gly Cys Cys Thr Cys Ala Gly Gly Gly Cys Cys Cys Cys Ala
1940 1945 1950

Gly Cys Cys Thr Cys Ala Thr Cys Ala Ala Gly Gly Gly Gly Gly Thr
1955 1960 1965

Thr Gly Cys Ala Cys Cys Thr Cys Cys Cys Ala Cys Cys Cys Thr Cys
1970 1975 1980

Ala Thr Cys Ala Cys Cys Gly Ala Cys Thr Cys Cys Ala Cys Ala Gly
1985 1990 1995 2000

Gly Gly Ala Cys Cys Cys Ala Cys Cys Thr Thr Gly Thr Cys Cys Thr
2005 2010 2015

Cys Ala Cys Cys Gly Thr Gly Ala Cys Cys Ala Ala Thr Ala Ala Gly
2020 2025 2030

Ala Ala Thr Gly Cys Ala Gly Ala Cys Ala Gly Cys Cys Cys Thr Gly
2035 2040 2045

Gly Cys Cys Thr Gly Thr Cys Cys Ala Gly Thr Gly Gly Gly Ala Gly
2050 2055 2060

Cys Cys Cys Cys Cys Ala Gly Cys Ala Gly Cys Cys Cys Thr Cys Gly
2065 2070 2075 2080

Year	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100
1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	

Cys Cys Thr Gly Gly Ala Cys Cys Thr Gly Gly Cys Thr Gly Ala Thr
2645 2650 2655

Gly Gly Cys Cys Ala Cys Cys Thr Gly Gly Ala Cys Ala Gly Cys Ala
2660 2665 2670

Thr Gly Gly Ala Cys Thr Gly Gly Cys Thr Gly Gly Ala Gly Cys Thr
2675 2680 2685

Gly Thr Cys Gly Thr Cys Ala Gly Gly Thr Gly Gly Thr Cys Cys Cys
2690 2695 2700

Gly Thr Gly Cys Thr Gly Ala Gly Cys Cys Thr Ala Gly Cys Cys Cys
2705 2710 2715 2720

Cys Cys Cys Thr Cys Ala Gly Cys Ala Cys Cys Ala Cys Ala Gly Cys
2725 2730 2735

Cys Cys Cys Cys Ala Gly Cys Cys Thr Cys Thr Thr Cys Thr Cys Cys
2740 2745 2750

Ala Cys Ala Gly Ala Cys Thr Thr Cys Cys Thr Cys Gly Ala Thr Gly
2755 2760 2765

Gly Cys Cys Ala Thr Gly Ala Thr Thr Thr Gly Cys Ala Gly Cys Thr
2770 2775 2780

Gly Cys Ala Cys Thr Gly Gly Gly Ala Thr Thr Cys Cys Thr Gly Cys
2785 2790 2795 2800

Thr Thr Gly Thr Ala Gly Cys Thr Cys Thr Cys Thr Gly Gly Cys Thr
2805 2810 2815

Cys Ala Ala Gly Ala Cys Gly Gly Gly Gly Thr Gly Gly Gly Gly Ala
2820 2825 2830

Ala Gly Gly Gly Gly Cys Thr Gly Gly Gly Ala Gly Cys Cys Ala Gly
2835 2840 2845

Gly Gly Thr Ala Cys Thr Cys Cys Ala Ala Thr Gly Cys Gly Thr Gly
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Gly Cys Thr Cys Thr Cys Cys Thr Gly Cys Gly Thr Gly Ala Thr Thr
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Cys Gly Gly Cys Cys Thr Cys Thr Cys Cys Ala Cys Ala Thr Gly Gly
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Thr Thr Gly Thr Gly Ala Gly Thr Cys Thr Thr Gly Ala Cys Ala Ala
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Thr Cys Ala Cys Ala Gly Cys Cys Cys Cys Thr Gly Cys Thr Thr Thr
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Thr Thr Cys Cys Cys Thr Thr Cys Cys Cys Thr Gly Gly Gly Ala Gly
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Gly Cys Thr Ala Gly Ala Ala Cys Ala Gly Ala Gly Ala Ala Gly Cys
2945 2950 2955 2960

Cys Cys Thr Thr Ala Cys Thr Cys Cys Thr Gly Gly Thr Thr Cys Ala
2965 2970 2975

Gly Thr Gly Cys Cys Ala Cys Gly Cys Ala Gly Gly Gly Cys Ala Gly
2980 2985 2990

Ala Gly Gly Ala Gly Ala Gly Cys Ala Gly Cys Thr Gly Thr Cys Ala
2995 3000 3005

Ala Gly Ala Ala Gly Cys Ala Gly Cys Cys Cys Thr Gly Gly Cys Thr
3010 3015 3020

Cys Thr Cys Ala Cys Gly Cys Thr Gly Gly Gly Gly Thr Thr Thr Thr
3025 3030 3035 3040

Gly Gly Ala Cys Ala Cys Ala Cys Gly Gly Thr Cys Ala Gly Gly Gly
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Thr Cys Ala Gly Gly Gly Cys Cys Ala Thr Thr Thr Cys Ala Gly Cys
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Thr Thr Gly Ala Cys Cys Thr Cys Cys Thr Thr Thr Thr Thr Gly
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Ala Gly Gly Thr Cys Ala Gly Gly Gly Gly Gly Cys Ala Cys Thr Gly
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Thr Cys Thr Gly Thr Cys Thr Gly Gly Cys Thr Ala Cys Ala Ala Thr
3105 3110 3115 3120

Thr Thr Gly Gly Cys Thr Ala Ala Gly Gly Thr Ala Gly Gly Thr Gly
3125 3130 3135

Ala Ala Gly Cys Cys Thr Gly Gly Cys Cys Ala Gly Gly Cys Gly Gly
3140 3145 3150

Gly Ala Gly Gly Cys Thr Thr Cys Thr Cys Thr Thr Cys Thr Gly Ala
3155 3160 3165

Cys Cys Cys Ala Gly Gly Gly Cys Thr Gly Ala Gly Ala Cys Ala Gly
3170 3175 3180

Gly Thr Thr Ala Ala Gly Gly Gly Gly Thr Gly Ala Ala Thr Cys Thr
3185 3190 3195 3200

Cys Cys Thr Thr Cys Cys Thr Thr Thr Cys Thr Cys Thr Cys Cys Cys
3205 3210 3215

Thr Gly Cys Thr Thr Thr Gly Cys Thr Gly Thr Gly Ala Ala Gly Gly
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Gly Ala Gly Ala Ala Ala Thr Thr Ala Gly Cys Cys Thr Gly Gly Gly
3235 3240 3245

Cys Cys Thr Cys Thr Ala Cys Cys Cys Cys Cys Thr Ala Thr Thr Cys
3250 3255 3260

Cys Cys Thr Gly Thr Gly Thr Cys Thr Gly Cys Cys Ala Ala Cys Cys
3265 3270 3275 3280

Cys Cys Ala Gly Gly Ala Thr Cys Cys Cys Ala Gly Gly Gly Cys Thr
3285 3290 3295

Cys Cys Cys Thr Gly Cys Cys Ala Thr Thr Thr Thr Ala Gly Thr Gly
3300 3305 3310

Thr Cys Thr Thr Gly Gly Thr Gly Thr Ala Gly Thr Gly Thr Ala Ala
3315 3320 3325

Cys Cys Ala Thr Thr Thr Ala Gly Thr Gly Gly Thr Thr Gly Gly Thr
3330 3335 3340

Gly Gly Cys Ala Ala Cys Ala Ala Thr Thr Thr Thr Ala Thr Gly Thr
3345 3350 3355 3360

Ala Cys Ala Gly Gly Thr Gly Thr Ala Thr Ala Thr Ala Cys Cys Thr
3365 3370 3375

Cys Thr Ala Thr Ala Thr Thr Ala Thr Ala Thr Ala Thr Cys Gly Ala
3380 3385 3390

Cys Ala Thr Ala Cys Ala Thr Ala Thr Ala Thr Ala Thr Thr Thr Thr
3395 3400 3405

Thr Gly Gly Gly Gly Gly Gly Gly Gly Gly Cys Gly Gly Ala Cys Ala
3410 3415 3420

Gly Gly Ala Gly Ala Thr Gly Gly Gly Thr Gly Cys Ala Ala Cys Thr
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Cys Cys Cys Thr Cys Cys Cys Ala Thr Cys Cys Thr Ala Cys Thr Cys
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Thr Cys Ala Cys Ala Gly Ala Ala Gly Gly Gly Cys Cys Thr Gly Gly
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Ala Thr Gly Cys Ala Ala Gly Gly Thr Thr Ala Cys Cys Cys Thr Thr
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Gly Ala Gly Cys Thr Gly Thr Gly Thr Gly Cys Cys Ala Cys Ala Gly
3490 3495 3500

Thr Cys Thr Gly Gly Thr Gly Cys Cys Cys Ala Gly Thr Cys Thr Gly
3505 3510 3515 3520

Gly Cys Ala Thr Gly Cys Ala Gly Cys Thr Ala Cys Cys Cys Ala Gly
3525 3530 3535

Gly Cys Cys Cys Ala Cys Cys Cys Ala Thr Cys Ala Cys Gly Thr Gly
3540 3545 3550

Thr Gly Ala Thr Thr Gly Ala Cys Ala Thr Gly Thr Ala Gly Gly Thr
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Ala Cys Cys Cys Thr Gly Cys Cys Ala Cys Gly Gly Cys Cys Thr Ala
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Thr Gly Cys Cys Cys Cys Ala Cys Cys Thr Gly Cys Cys Cys Thr Gly
3585 3590 3595 3600

Cys Thr Thr Cys Cys Thr Gly Gly Cys Thr Cys Cys Thr Thr Ala Thr
3605 3610 3615

Cys Ala Gly Thr Gly Cys Cys Ala Thr Gly Ala Gly Gly Gly Cys Ala
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Gly Ala Gly Gly Thr Gly Cys Thr Ala Cys Cys Thr Gly Gly Cys Cys
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Thr Thr Cys Cys Thr Gly Cys Cys Ala Gly Gly Ala Gly Cys Thr Cys
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Thr Cys Cys Thr Ala Gly Gly Ala Cys Ala Gly Gly Ala Gly Gly Ala
3715 3720 3725

Gly Cys Thr Thr Cys Gly Gly Gly Cys Cys Cys Ala Gly Cys Thr Thr
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3745 3750 3755 3760

Thr Gly Ala Gly Gly Gly Thr Gly Gly Cys Cys Ala Thr Cys Thr
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Cys Cys Thr Gly Cys Cys Cys Thr Gly Gly Gly Gly Cys Cys Ala Cys
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Thr Gly Gly Cys Thr Thr Cys Ala Cys Ala Thr Thr Cys Thr Gly Gly
3795 3800 3805

Gly Cys Thr Gly Ala Cys Thr Cys Ala Thr Ala Gly Gly Gly Gly Ala
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Gly Thr Ala Gly Gly Gly Gly Thr Gly Gly Ala Gly Thr Cys Ala Cys
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Cys Ala Ala Ala Ala Cys Cys Ala Gly Thr Gly Cys Thr Gly Gly Gly
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Ala Cys Ala Ala Ala Gly Ala Thr Gly Gly Gly Gly Ala Ala Gly Gly
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 Ser Lys Ala Ala Asp Ala Phe Ala Phe Glu Asp Asp Ser Ser Arg Asp
 20 25 30

ggg ctc tct cca gat cag gct agg agc gag gac ccc cag ggc tct aca 144
 Gly Leu Ser Pro Asp Gln Ala Arg Ser Glu Asp Pro Gln Gly Ser Thr
 35 40 45

gga tcc acc cca gac atc aaa tcc act gag gct cct ctg gac aca atc 192
 Gly Ser Thr Pro Asp Ile Lys Ser Thr Glu Ala Pro Leu Asp Thr Ile
 50 55 60

cag gat ctc act cct ggc tca gaa agt gac aag aat gat gca gcc tcc 240
 Gln Asp Leu Thr Pro Gly Ser Glu Ser Asp Lys Asn Asp Ala Ala Ser
 65 70 75 80

cag cca ggc aac cag tca gac cct ggg aag cag gtt ctc ggc ccc ctc 288

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gtg Val	gaa Glu	gag Glu	ctg Leu 420	aga Arg	atg Met	caa Gln	ctg Leu	cag Gln 425	aag Lys	cag Gln	aag Lys	agc Ser	agc Ser	tgc Cys	agc Ser	1296
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gtc Val	tcc Ser 450	agc Ser	tgc Cys	ccc Pro	ttc Phe	gca Ala 455	ccc Pro	cag Gln	cag Gln	gcg Ala	tct Ser 460	ggg Gly	aag Lys	gga Gly	cag Gln	1392
ggc Gly 465	cac His	agc Ser	tct Ser	gac Asp	agt Ser 470	ccc Pro	cct Pro	ccg Pro	gct Ala	tgt Cys 475	gag Glu	acg Thr	gct Ala	cag Gln	ctg Leu 480	1440
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ctg	aag	agc	ccg	cag	cac	atc	agc	ctg	cct	cca	tca	ccc	aac	aac	cat	1584

Leu	Lys	Ser	Pro	Gln	His	Ile	Ser	Leu	Pro	Pro	Ser	Pro	Asn	Asn	His	
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Tyr	Phe	Leu	Ala	Ser	Ser	Ser	Gly	Ala	Gln	Arg	Glu	Asn	His	Gly	Val	
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Ser	Ser	Pro	Ser	Ser	Ser	Gln	Gly	Cys	Ala	Gln	Met	Thr	Gly	Leu	Gln	
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Ser	Ser	Asp	Lys	Val	Gly	Pro	Thr	Phe	Ser	Ile	Pro	Ser	Pro	Thr	Phe	
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Ser	Lys	Ser	Ser	Ser	Ala	Val	Ser	Asp	Ile	Thr	Gln	Pro	Pro	Ser	Tyr	
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gaa	gat	gca	gtg	aag	cag	caa	atg	act	cgg	agt	cag	cag	atg	gac	gaa	1824
Glu	Asp	Ala	Val	Lys	Gln	Gln	Met	Thr	Arg	Ser	Gln	Gln	Met	Asp	Glu	
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Leu	Leu	Asp	Val	Leu	Ile	Glu	Ser	Gly	Glu	Met	Pro	Ala	Asp	Ala	Arg	
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Cys	Ser	Pro	Thr	Ala	Ile	Pro	Pro	Lys	Pro	Ser	Ala	Ser	Phe	Glu	Gln	
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Ala	Ser	Ser	Gly	Gly	Gln	Met	Ala	Phe	Asp	His	Tyr	Ala	Asn	Asp	Ser	
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Asp	Glu	His	Leu	Glu	Val	Leu	Leu	Asn	Ser	His	Ser	Pro	Ile	Gly	Lys	
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Val	Ser	Asp	Val	Thr	Leu	Leu	Lys	Ile	Gly	Ser	Glu	Glu	Pro	Pro	Phe	
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Asp	Ser	Ile	Met	Asp	Gly	Phe	Pro	Gly	Lys	Ala	Ala	Glu	Asp	Leu	Phe	
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			180					185						190			
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Lys	Val	Ile	Asn	Gln	Leu	Thr	Trp	Lys	Leu	Arg	Gln	Glu	Gln	Arg	Gln		
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Val	Glu	Glu	Leu	Arg	Met	Gln	Leu	Gln	Lys	Gln	Lys	Ser	Ser	Cys	Ser		
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Asp Gln Lys Pro Leu Pro Phe Leu Ala Thr Thr Ile Lys Gln Glu Asp
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Val Ser Ser Cys Pro Phe Ala Pro Gln Gln Ala Ser Gly Lys Gly Gln
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Gly His Ser Ser Asp Ser Pro Pro Pro Ala Cys Glu Thr Ala Gln Leu
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Leu Lys Ser Pro Gln His Ile Ser Leu Pro Pro Ser Pro Asn Asn His
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Tyr Phe Leu Ala Ser Ser Ser Gly Ala Gln Arg Glu Asn His Gly Val
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Ser Ser Asp Lys Val Gly Pro Thr Phe Ser Ile Pro Ser Pro Thr Phe
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Ser Lys Ser Ser Ser Ala Val Ser Asp Ile Thr Gln Pro Pro Ser Tyr
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Glu Asp Ala Val Lys Gln Gln Met Thr Arg Ser Gln Gln Met Asp Glu
595 600 605

Leu Leu Asp Val Leu Ile Glu Ser Gly Glu Met Pro Ala Asp Ala Arg
610 615 620

Glu Asp His Ser Cys Leu Gln Lys Ile Pro Lys Ile Pro Gly Ser Ser
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Cys Ser Pro Thr Ala Ile Pro Pro Lys Pro Ser Ala Ser Phe Glu Gln
645 650 655

Ala Ser Ser Gly Gly Gln Met Ala Phe Asp His Tyr Ala Asn Asp Ser
660 665 670

Asp Glu His Leu Glu Val Leu Leu Asn Ser His Ser Pro Ile Gly Lys
675 680 685

Val Ser Asp Val Thr Leu Leu Lys Ile Gly Ser Glu Glu Pro Pro Phe
690 695 700

Asp Ser Ile Met Asp Gly Phe Pro Gly Lys Ala Ala Glu Asp Leu Phe
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200
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Glu Ser Pro Trp Glu Thr Met Glu Trp Leu Asp Leu Thr Pro Pro Ser
755 760 765

Ser Thr Pro Gly Phe Ser Asn Leu Thr Ser Ser Gly Pro Ser Ile Phe
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ctcaac atg aca ctc ctg ggg tct gag cat tcc ttg ctg att agg agc 288
Met Thr Leu Leu Gly Ser Glu His Ser Leu Leu Ile Arg Ser
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Lys Phe Arg Ser Val Leu Gln Leu Arg Leu Gln Gln Arg Arg Thr Gln
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gaa caa ctg gct aac caa ggc ata ata cca cca ctg aaa cgt cca gct 384
Glu Gln Leu Ala Asn Gln Gly Ile Ile Pro Leu Lys Arg Pro Ala
35 40 45
gaa ttc cat gag caa aga aaa cat ttg gat agt gac aag gct aaa aat 432
Glu Phe His Glu Gln Arg Lys His Leu Asp Ser Asp Lys Ala Lys Asn
50 55 60

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Pro	Asp	Gln	Lys	Ala	Glu	Lys	Ser	Pro	Pro	Pro	Met	Asp	Ser	Ala	Tyr	
				275					280					285		
gct	cgg	ctg	ctc	cag	caa	cag	cag	ctg	ttc	ctg	cag	ctc	caa	atc	ctc	1152
Ala	Arg	Leu	Leu	Gln	Gln	Gln	Gln	Leu	Phe	Leu	Gln	Leu	Gln	Ile	Leu	
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agc	cag	cag	cag	cag	cag	cag	caa	cac	cga	ttc	agc	tac	cta	ggg	atg	1200
Ser	Gln	Gln	Gln	Gln	Gln	Gln	Gln	His	Arg	Phe	Ser	Tyr	Leu	Gly	Met	
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cac	caa	gct	cag	ctt	aag	gaa	cca	aat	gaa	cag	atg	gtc	aga	aat	cca	1248
His	Gln	Ala	Gln	Leu	Lys	Glu	Pro	Asn	Glu	Gln	Met	Val	Arg	Asn	Pro	
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aac	tct	tct	tca	acg	cca	ctg	agc	aat	acc	ccc	ttg	tct	cct	gtc	aaa	1296
Asn	Ser	Ser	Ser	Thr	Pro	Leu	Ser	Asn	Thr	Pro	Leu	Ser	Pro	Val	Lys	
					340					345					350	
aac	agt	ttt	tct	gga	caa	act	ggg	gtc	tct	tct	ttc	aaa	cca	ggc	cca	1344
Asn	Ser	Phe	Ser	Gly	Gln	Thr	Gly	Val	Ser	Ser	Phe	Lys	Pro	Gly	Pro	
				355				360						365		
ctc	cca	cct	aac	ctg	gat	gat	ctg	aag	gtc	tct	gaa	tta	aga	caa	cag	1392
Leu	Pro	Pro	Asn	Leu	Asp	Asp	Leu	Lys	Val	Ser	Glu	Leu	Arg	Gln	Gln	
			370					375					380			
ctt	cga	att	cgg	ggc	ttg	cct	gtg	tca	ggc	acc	aaa	acg	gct	ctc	atg	1440
Leu	Arg	Ile	Arg	Gly	Leu	Pro	Val	Ser	Gly	Thr	Lys	Thr	Ala	Leu	Met	
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gac	cgg	ctt	cga	ccc	ttc	cag	gac	tgc	tct	ggc	aac	cca	gtg	ccg	aac	1488
Asp	Arg	Leu	Arg	Pro	Phe	Gln	Asp	Cys	Ser	Gly	Asn	Pro	Val	Pro	Asn	
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Phe	Gly	Asp	Ile	Thr	Thr	Val	Thr	Phe	Pro	Val	Thr	Pro	Asn	Thr	Leu	
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ccc	aat	tac	cag	tct	tcc	tct	tct	acc	agt	gcc	ctg	tcc	aac	ggc	ttc	1584
Pro	Asn	Tyr	Gln	Ser	Ser	Ser	Ser	Thr	Ser	Ala	Leu	Ser	Asn	Gly	Phe	
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Tyr	His	Phe	Gly	Ser	Thr	Ser	Ser	Ser	Pro	Pro	Ile	Ser	Pro	Ala	Ser	
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Ser	Asp	Leu	Ser	Val	Ala	Gly	Ser	Leu	Pro	Asp	Thr	Phe	Asn	Asp	Ala	
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tcc	ccc	tcc	ttc	ggc	ctg	cac	ccg	tcc	cca	gtc	cac	gtg	tgc	acg	gag	1728
Ser	Pro	Ser	Phe	Gly	Leu	His	Pro	Ser	Pro	Val	His	Val	Cys	Thr	Glu	
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gaa Glu 495	agt Ser	ctc Leu	atg Met	agc Ser	agc Ser	ctg Leu	aat Asn	ggg Gly	ggc Gly	tct Ser	gtt Val	cct Pro	tct Ser	gag Glu	ctg Leu	1776
gat Asp																
ggg Gly																
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atg Met																
ctg Leu																
gtg Val																
gag Glu																
aag Lys																
cag Gln																
aag Lys																
1824																
gtg Val																
atc Ile																
aat Asn																
gaa Glu																
ctc Leu																
acc Thr																
tgg Trp																
aaa Lys																
ctc Leu																
cag Gln																
caa Gln																
gag Glu																
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agg Arg																
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gtg Val																
1872																
gag Glu																
gag Glu																
ctg Leu																
agg Arg																
atg Met																
cag Gln																
ctt Leu																
cag Gln																
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cag Gln																
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aac Asn																
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tca Ser																
1920																
gag Glu																
aag Lys																
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ccg Pro																
ctg Leu																
cct Pro																
ttc Phe																
ctg Leu																
gct Ala																
gcc Ala																
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aag Lys																
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gaa Glu																
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1968																
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tcc Ser																
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ttt Phe																
gca Ala																
tcc Ser																
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gta Val																
cct Pro																
gtg Val																
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aga Arg																
caa Gln																
2016																
agc Ser																
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agc Ser																
tca Ser																
gag Glu																
tgt Cys																
cac His																
cca Pro																
ccg Pro																
gct Ala																
tgt Cys																
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gct Ala																
caa Gln																
ctc Leu																
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acc Thr																
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gca Ala																

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Gln	Gln	Met	Asp	Glu	Leu	Leu	Asp	Val	Leu	Ile	Glu	Ser	Gly	Glu	Met	
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cca	gca	gac	gct	aga	gag	gat	cac	tca	tgt	ctt	caa	aaa	gtc	cca	aag	2544
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Ile	Pro	Arg	Ser	Ser	Arg	Ser	Pro	Thr	Ala	Val	Leu	Thr	Lys	Pro	Ser	
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gct	tcc	ttt	gaa	caa	gcc	tct	tca	ggc	agc	cag	atc	ccc	ttt	gat	ccc	2640
Ala	Ser	Phe	Glu	Gln	Ala	Ser	Ser	Gly	Ser	Gln	Ile	Pro	Phe	Asp	Pro	
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Tyr	Ala	Thr	Asp	Ser	Asp	Glu	His	Leu	Glu	Val	Leu	Leu	Asn	Ser	Gln	
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Ser	Pro	Leu	Gly	Lys	Met	Ser	Asp	Val	Thr	Leu	Leu	Lys	Ile	Gly	Ser	
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gaa	gag	cct	cac	ttt	gat	ggg	ata	atg	gat	gga	ttc	tct	ggg	aag	gct	2784
Glu	Glu	Pro	His	Phe	Asp	Gly	Ile	Met	Asp	Gly	Phe	Ser	Gly	Lys	Ala	
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gca	gaa	gac	ctc	ttc	aat	gca	cat	gag	atc	ttg	cca	ggc	ccc	ctc	tct	2832
Ala	Glu	Asp	Leu	Phe	Asn	Ala	His	Glu	Ile	Leu	Pro	Gly	Pro	Leu	Ser	
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cca	atg	cag	aca	cag	ttt	tca	ccc	tct	tct	gtg	gac	agc	aat	ggg	ctg	2880
Pro	Met	Gln	Thr	Gln	Phe	Ser	Pro	Ser	Ser	Val	Asp	Ser	Asn	Gly	Leu	
		865					870					875				
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Gln	Leu	Ser	Phe	Thr	Glu	Ser	Pro	Trp	Glu	Thr	Met	Glu	Trp	Leu	Asp	
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Leu	Thr	Pro	Pro	Asn	Ser	Thr	Pro	Gly	Phe	Ser	Ala	Leu	Thr	Thr	Ser	
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agc	ccc	agc	atc	ttc	aac											

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Phe	Ser	Gly	Gln	Thr	Gly	Val	Ser	Ser	Phe	Lys	Pro	Gly	Pro	Leu	Pro
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Pro	Asn	Leu	Asp	Asp	Leu	Lys	Val	Ser	Glu	Leu	Arg	Gln	Gln	Leu	Arg
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			420					425					430		
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Ser	Phe	Gly	Leu	His	Pro	Ser	Pro	Val	His	Val	Cys	Thr	Glu	Glu	Ser
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Leu	Met	Ser	Ser	Leu	Asn	Gly	Gly	Ser	Val	Pro	Ser	Glu	Leu	Asp	Gly
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Thr Asp Ser Asp Glu His Leu Glu Val Leu Leu Asn Ser Gln Ser Pro
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Leu Gly Lys Met Ser Asp Val Thr Leu Leu Lys Ile Gly Ser Glu Glu
820 825 830

Pro His Phe Asp Gly Ile Met Asp Gly Phe Ser Gly Lys Ala Ala Glu
835 840 845

Asp Leu Phe Asn Ala His Glu Ile Leu Pro Gly Pro Leu Ser Pro Met
850 855 860

Gln Thr Gln Phe Ser Pro Ser Ser Val Asp Ser Asn Gly Leu Gln Leu
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Ser Phe Thr Glu Ser Pro Trp Glu Thr Met Glu Trp Leu Asp Leu Thr
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Pro Pro Asn Ser Thr Pro Gly Phe Ser Ala Leu Thr Thr Ser Ser Pro
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Leu Ala Asn Gln Gly Ile Ile Pro Pro Leu Lys Arg Pro Ala Glu Phe
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His Glu Gln Arg Lys His Leu Asp Ser Asp Lys Ala Lys Asn Ser Leu
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Lys Arg Lys Ala Arg Asn Arg Cys Asn Ser Ala Asp Leu Val Asn Met
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His Ile Leu Gln Ala Ser Thr Ala Glu Arg Ser Ile Pro Thr Ala Gln
85 90 95

Met Lys Leu Lys Arg Ala Arg Leu Ala Asp Asp Leu Asn Glu Lys Ile

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325 330 335
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Ser	Lys	Ser	Thr	Asp	Ala	Phe	Ala	Phe	Glu	Glu	Asp	Ser	Ser	Ser	Asp	
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Gly	Leu	Ser	Pro	Asp	Gln	Thr	Arg	Ser	Glu	Asp	Pro	Gln	Asn	Ser	Ala	
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Leu	Leu	Gln	Gln	Gln	Gln	Leu	Phe	Leu	Gln	Leu	Gln	Ile	Leu	Ser	Gln	
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Pro	Asn	Leu	Asp	Asp	Leu	Lys	Val	Ser	Glu	Leu	Arg	Gln	Gln	Leu	Arg	
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Ile	Arg	Gly	Leu	Pro	Val	Ser	Gly	Thr	Lys	Thr	Ala	Leu	Met	Asp	Arg	

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Leu Arg Pro Phe Gln Asp Cys Ser Gly Asn Pro Val Pro Asn Phe Gly						
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Asp Ile Thr Thr Val Thr Phe Pro Val Thr Pro Asn Thr Leu Pro Asn						
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Tyr Gln Ser Ser Ser Ser Thr Ser Ala Leu Ser Asn Gly Phe Tyr His						
		435		440		445
Phe Gly Ser Thr Ser Ser Ser Pro Pro Ile Ser Pro Ala Ser Ser Asp						
		450		455		460
Leu Ser Val Ala Gly Ser Leu Pro Asp Thr Phe Asn Asp Ala Ser Pro						
		465		470		475
				475		480
Ser Phe Gly Leu His Pro Ser Pro Val His Val Cys Thr Glu Glu Ser						
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Leu Met Ser Ser Leu Asn Gly Gly Ser Val Pro Ser Glu Leu Asp Gly						
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Leu Asp Ser Glu Lys Asp Lys Met Leu Val Glu Lys Gln Lys Val Ile						
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Asn Glu Leu Thr Trp Lys Leu Gln Gln Glu Gln Arg Gln Val Glu Glu						
		530		535		540
Leu Arg Met Gln Leu Gln Lys Gln Lys Arg Asn Asn Cys Ser Glu Lys						
		545		550		555
				555		560
Lys Pro Leu Pro Phe Leu Ala Ala Ser Ile Lys Gln Glu Glu Ala Val						
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Ser Ser Cys Pro Phe Ala Ser Gln Val Pro Val Lys Arg Gln Ser Ser						
		580		585		590
Ser Ser Glu Cys His Pro Pro Ala Cys Glu Ala Ala Gln Leu Gln Pro						
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Leu Gly Asn Ala His Cys Val Glu Ser Ser Asp Gln Thr Asn Val Leu						
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Ser Ser Thr Phe Leu Ser Pro Gln Cys Ser Pro Gln His Ser Pro Leu						
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Gly Ala Val Lys Ser Pro Gln His Ile Ser Leu Pro Pro Ser Pro Asn						
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Asn Pro His Phe Leu Pro Ser Ser Ser Gly Ala Gln Gly Glu Gly His						
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<220>

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tcctcctacc caagggagct cccaagagt tggatgaatt ctgggttggt agctgctgtc 180

ctctgggctc ccgggagcca gtttctggtg gaaagcgggg cgctggcca acgaccagcg 240

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Met Thr Leu Leu Gly Ser Glu His Ser Leu Leu
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Ile Arg Arg Lys Phe Arg Ser Val Leu Gln Leu Arg Leu Gln Gln Arg
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agg acc cag gag cag ctg gct aac caa ggc tta ata ccg cca ctg aaa 386

Arg Thr Gln Glu Gln Leu Ala Asn Gln Gly Leu Ile Pro Pro Leu Lys
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Gly Pro Thr Glu Phe His Asp Pro Arg Lys Gln Leu Asp Ser Ala Lys
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Thr Glu Asp Ser Leu Arg Arg Lys Gly Arg Asn Arg Ser Asp Arg Ala
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Ser Leu Val Thr Met His Ile Leu Gln Ala Ser Thr Ala Glu Arg Ser
80 85 90

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Ile Pro Thr Ala Gln Met Lys Leu Lys Arg Ala Arg Leu Ala Asp Asp
95 100 105

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Leu Asn Glu Lys Ile Ala Leu Arg Gln Gly Pro Leu Glu Leu Val Glu
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aag aac att ctg ccg atg gat tct tcc gtg aaa gag gct ata aaa ggt 674

Lys Asn Ile Leu Pro Met Asp Ser Ser Val Lys Glu Ala Ile Lys Gly
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Thr Glu Val Ser Leu Ser Lys Ala Ala Asp Ala Phe Ala Phe Glu Asp
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gtt Val 220	ctc Leu	ggc Gly	ccc Pro	ctc Leu	agc Ser	acc Thr	ccg Pro	att Ile	cct Pro	gtg Val	cac His	act Thr	gct Ala	gta Val	aag Lys 235	962
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ccc Pro	aaa Lys	cca Pro	aag Lys 255	gtg Val	aag Lys	aag Lys	ctc Leu	aaa Lys 260	tac Tyr	cat His	cag Gln	tac Tyr	atc Ile 265	ccc Pro	cca Pro	1058
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Tyr Phe Leu Ala Ser Ser Ser Gly Ala Gln Arg Glu Asn His Gly Val
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Met Asp Ser Ser Val
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Val Lys Asn Ser Ile Ser Gly Gln Thr Gly Val Ser Ser Leu Lys Pro	
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Gly Pro Leu Pro Pro Asn Leu Asp Asp Leu Lys Val Ser Glu Leu Arg	
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Gln Gln Leu Arg Ile Arg Gly Leu Pro Val Ser Gly Thr Lys Thr Ala	
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Leu Val Asp Arg Leu Arg Pro Phe Gln Asp Cys Ala Gly Asn Pro Val	
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Pro Asn Phe Gly Asp Ile Thr Thr Val Thr Phe Pro Val Thr Pro Asn	
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Thr Leu Pro Ser Tyr Gln Ser Ser Pro Thr Gly Phe Tyr His Phe Gly	
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Ser Thr Ser Ser Ser Pro Pro Ile Ser Pro Ala Ser Ser Asp Leu Ser	
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Ala Ala Gly Ser Leu Pro Asp Thr Phe Thr Asp Ala Ser Pro Gly Phe	
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Gly Leu His Ala Ser Pro Val Pro Ala Cys Thr Asp Glu Ser Leu Leu	
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Ser Ser Leu Asn Gly Gly Ser Gly Pro Ser Glu Pro Asp Gly Leu Asp	
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Ser Glu Lys Asp Lys Met Leu Val Glu Lys Gln Lys Val Ile Asn Gln	
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Leu Thr Trp Lys Leu Arg Gln Glu Gln Arg Gln Val Glu Glu Leu Arg	
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Met	Gln	Leu	Gln	Lys	Gln	Lys	Ser	Ser	Cys	Ser	Asp	Gln	Lys	Pro	Leu		
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ccc	ttc	ttg	gcc	acc	acc	atc	aaa	cag	gaa	gat	gtc	tcc	agc	tgc	ccc	1999	
Pro	Phe	Leu	Ala	Thr	Thr	Ile	Lys	Gln	Glu	Asp	Val	Ser	Ser	Cys	Pro		
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ttc	gca	ccc	cag	cag	gcg	tct	ggg	aag	gga	cag	ggc	cac	agc	tct	gac	2047	
Phe	Ala	Pro	Gln	Gln	Ala	Ser	Gly	Lys	Gly	Gln	Gly	His	Ser	Ser	Asp		
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Ser	Pro	Pro	Pro	Ala	Cys	Glu	Thr	Ala	Gln	Leu	Leu	Pro	His	Cys	Val		
470					475				480						485		
gag	tcc	tca	ggt	caa	acc	cat	gta	ctc	tcg	tcc	acg	ttt	ctc	agc	ccc	2143	
Glu	Ser	Ser	Gly	Gln	Thr	His	Val	Leu	Ser	Ser	Thr	Phe	Leu	Ser	Pro		
			490					495					500				
cag	tgc	tcc	cct	cag	cac	tcg	ccc	ctg	ggg	ggc	ctg	aag	agc	ccg	cag	2191	
Gln	Cys	Ser	Pro	Gln	His	Ser	Pro	Leu	Gly	Gly	Leu	Lys	Ser	Pro	Gln		
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cac	atc	agc	ctg	cct	cca	tca	ccc	aac	aac	cat	tac	ttc	ctg	gct	tcc	2239	
His	Ile	Ser	Leu	Pro	Pro	Ser	Pro	Asn	Asn	His	Tyr	Phe	Leu	Ala	Ser		
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tct	tcg	gga	gct	cag	aga	gag	aac	cat	ggg	gtc	tct	tca	ccc	agc	agc	2287	
Ser	Ser	Gly	Ala	Gln	Arg	Glu	Asn	His	Gly	Val	Ser	Ser	Pro	Ser	Ser		
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Ser	Gln	Gly	Cys	Ala	Gln	Met	Thr	Gly	Leu	Gln	Ser	Ser	Asp	Lys	Val		
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ggg	cca	acg	ttt	tca	att	cca	tcc	cca	act	ttt	tct	aag	tca	agt	tca	2383	
Gly	Pro	Thr	Phe	Ser	Ile	Pro	Ser	Pro	Thr	Phe	Ser	Lys	Ser	Ser	Ser		
			570					575					580				
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Ala	Val	Ser	Asp	Ile	Thr	Gln	Pro	Pro	Ser	Tyr	Glu	Asp	Ala	Val	Lys		
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cag	caa	atg	act	cgg	agt	cag	cag	atg	gac	gaa	ctc	ctg	gat	gtc	ctc	2479	
Gln	Gln	Met	Thr	Arg	Ser	Gln	Gln	Met	Asp	Glu	Leu	Leu	Asp	Val	Leu		
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att	gaa	agt	gga	gaa	atg	cca	gcc	gat	gcc	agg	gaa	gat	cat	tca	tgt	2527	
Ile	Glu	Ser	Gly	Glu	Met	Pro	Ala	Asp	Ala	Arg	Glu	Asp	His	Ser	Cys		
		615				620				625							
ctt	cag	aaa	att	cca	aag	atc	cct	ggg	tcc	tcc	tgc	agc	cca	act	gcc	2575	
Leu	Gln	Lys	Ile	Pro	Lys	Ile	Pro	Gly	Ser	Ser	Cys	Ser	Pro	Thr	Ala		

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atc ccc ccg aag ccc tcg gct tcc ttt gag cag gca tct tcg gga ggc				2623
Ile Pro Pro Lys Pro Ser Ala Ser Phe Glu Gln Ala Ser Ser Gly Gly	650	655	660	
cag atg gcc ttc gat cac tac gcc aac gac agt gac gaa cac ctg gaa				2671
Gln Met Ala Phe Asp His Tyr Ala Asn Asp Ser Asp Glu His Leu Glu	665	670	675	
gtc tta ttg aat tct cac agc ccc atc gga aag gtg agc gat gtt acc				2719
Val Leu Leu Asn Ser His Ser Pro Ile Gly Lys Val Ser Asp Val Thr	680	685	690	
ctc ctc aaa atc gga agc gag gag cct cct ttt gac agc atc atg gat				2767
Leu Leu Lys Ile Gly Ser Glu Glu Pro Pro Phe Asp Ser Ile Met Asp	695	700	705	
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Gly Phe Pro Gly Lys Ala Ala Glu Asp Leu Phe Ser Ala His Glu Leu	710	715	720	725
ttg cct ggg ccc ctc tcc ccg atg cat gca cag ttg tca cct cct tct				2863
Leu Pro Gly Pro Leu Ser Pro Met His Ala Gln Leu Ser Pro Pro Ser	730	735	740	
gtg gac agc agt ggt ctg cag ctg agc ttc acg gaa tct cct tgg gaa				2911
Val Asp Ser Ser Gly Leu Gln Leu Ser Phe Thr Glu Ser Pro Trp Glu	745	750	755	
aca atg gaa tgg ctg gac ctc act cca cct agt tcc acg cca ggc ttc				2959
Thr Met Glu Trp Leu Asp Leu Thr Pro Pro Ser Ser Thr Pro Gly Phe	760	765	770	
agc aac ctt acc tcc agt ggg ccc agc att ttc aac atc gat ttt ctg				3007
Ser Asn Leu Thr Ser Ser Gly Pro Ser Ile Phe Asn Ile Asp Phe Leu	775	780	785	
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Asp Val Thr Asp Leu Asn Leu Asn Ser Pro Met Asp Leu His Leu Gln	790	795	800	805
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Gln Trp				
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Gly	Leu	Ser	Pro	Asp	Gln	Ala	Arg	Ser	Glu	Asp	Pro	Gln	Gly	Ser	Thr
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Gly	Ser	Thr	Pro	Asp	Ile	Lys	Ser	Thr	Glu	Ala	Pro	Leu	Asp	Thr	Ile
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Gln	Asp	Leu	Thr	Pro	Gly	Ser	Glu	Ser	Asp	Lys	Asn	Asp	Ala	Ala	Ser
65					70					75					80
Gln	Pro	Gly	Asn	Gln	Ser	Asp	Pro	Gly	Lys	Gln	Val	Leu	Gly	Pro	Leu
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Ser	Thr	Pro	Ile	Pro	Val	His	Thr	Ala	Val	Lys	Ser	Lys	Ser	Leu	Gly
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Asp	Ser	Lys	Asn	Arg	His	Lys	Lys	Pro	Lys	Asp	Pro	Lys	Pro	Lys	Val
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Lys	Lys	Leu	Lys	Tyr	His	Gln	Tyr	Ile	Pro	Pro	Asp	Gln	Lys	Ala	Glu
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Lys	Ser	Pro	Pro	Pro	Met	Asp	Ser	Ala	Tyr	Ala	Arg	Leu	Leu	Gln	Gln
145					150					155					160
Gln	Gln	Leu	Phe	Leu	Gln	Leu	Gln	Ile	Leu	Ser	Gln	Gln	Gln	Gln	Gln
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 260 265 270
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 Pro Val Thr Pro Asn Thr Leu Pro Ser Tyr Gln Ser Ser Pro Thr Gly
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 Phe Tyr His Phe Gly Ser Thr Ser Ser Ser Pro Pro Ile Ser Pro Ala
 325 330 335
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 Ala Ser Pro Gly Phe Gly Leu His Ala Ser Pro Val Pro Ala Cys Thr
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 Asp Glu Ser Leu Leu Ser Ser Leu Asn Gly Gly Ser Gly Pro Ser Glu
 370 375 380
 Pro Asp Gly Leu Asp Ser Glu Lys Asp Lys Met Leu Val Glu Lys Gln
 385 390 395 400
 Lys Val Ile Asn Gln Leu Thr Trp Lys Leu Arg Gln Glu Gln Arg Gln
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 Leu Lys Ser Pro Gln His Ile Ser Leu Pro Pro Ser Pro Asn Asn His
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Tyr Phe Leu Ala Ser Ser Ser Gly Ala Gln Arg Glu Asn His Gly Val
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Arg Arg Ser Leu Glu Arg Ala Arg Thr Glu Asp Tyr Leu Lys Arg Lys
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Ile Arg Ser Arg Pro Glu Arg Ser Glu Leu Val Arg Met His Ile Leu
        35             40             45

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Glu Glu Thr Ser Ala Glu Pro Ser Leu Gln Ala Lys Gln Leu Lys Leu
        50             55             60

aag aga gcc aga cta gcc gat gac ctc aat gag aag att gca cag agg 241
Lys Arg Ala Arg Leu Ala Asp Asp Leu Asn Glu Lys Ile Ala Gln Arg
        65             70             75

cct ggc ccc atg gag ctg gtg gag aag aac atc ctt cct gtt gag tcc 289
Pro Gly Pro Met Glu Leu Val Glu Lys Asn Ile Leu Pro Val Glu Ser
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Ser Leu Lys Glu Ala Ile Ile Val Gly Gln Val Asn Tyr Pro Lys Val
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acc cag gtt gtg tct caa ctt ccg atg ggc cgg gat tcc aga gaa atg	529
Thr Gln Val Val Ser Gln Leu Pro Met Gly Arg Asp Ser Arg Glu Met	
160 165 170 175	
ctt ttc ctg gca gag cag cct cct ctg cct ccc cca cct ctg ctg cct	577
Leu Phe Leu Ala Glu Gln Pro Pro Leu Pro Pro Pro Leu Leu Pro	
180 185 190	
ccc agc ctc acc aat gga acc act atc ccc act gcc aag tcc acc ccc	625
Pro Ser Leu Thr Asn Gly Thr Thr Ile Pro Thr Ala Lys Ser Thr Pro	
195 200 205	
aca ctc att aag caa agc caa ccc aag tct gcc agt gag aag tca cag	673
Thr Leu Ile Lys Gln Ser Gln Pro Lys Ser Ala Ser Glu Lys Ser Gln	
210 215 220	
cgc agc aag aag gcc aag gag ctg aag cca aag gtg aag aag ctc aag	721
Arg Ser Lys Lys Ala Lys Glu Leu Lys Pro Lys Val Lys Lys Leu Lys	
225 230 235	
tac cac cag tac atc ccc ccg gac cag aag cag gac agg ggg gca ccc	769
Tyr His Gln Tyr Ile Pro Pro Asp Gln Lys Gln Asp Arg Gly Ala Pro	
240 245 250 255	
ccc atg gac tca tcc tac gcc aag atc ctg cag cag cag cag ctc ttc	817
Pro Met Asp Ser Ser Tyr Ala Lys Ile Leu Gln Gln Gln Gln Leu Phe	
260 265 270	
ctc cag ctg cag atc ctc aac cag cag cag cag cag cac cac aac tac	865
Leu Gln Leu Gln Ile Leu Asn Gln Gln Gln Gln Gln His His Asn Tyr	
275 280 285	
cag gcc atc ctg cct gcc ccg cca aag tca gca ggc gag gcc ctg gga	913
Gln Ala Ile Leu Pro Ala Pro Pro Lys Ser Ala Gly Glu Ala Leu Gly	
290 295 300	
agc agc ggg acc ccc cca gta cgc agc ctc tcc act acc aat agc agc	961
Ser Ser Gly Thr Pro Pro Val Arg Ser Leu Ser Thr Thr Asn Ser Ser	
305 310 315	
tcc agc tcg ggc gcc cct ggg ccc tgt ggg ctg gca cgt cag aac agc	1009
Ser Ser Ser Gly Ala Pro Gly Pro Cys Gly Leu Ala Arg Gln Asn Ser	
320 325 330 335	
acc tca ctg act ggc aag ccg gga gcc ctg ccg gcc aac ctg gac gac	1057
Thr Ser Leu Thr Gly Lys Pro Gly Ala Leu Pro Ala Asn Leu Asp Asp	
340 345 350	
atg aag gtg gca gag ctg aag cag gag ctg aag ttg cga tca ctg cct	1105
Met Lys Val Ala Glu Leu Lys Gln Glu Leu Lys Leu Arg Ser Leu Pro	
355 360 365	

gtc tcg ggc acc aaa act gag ctg att gag cgc ctt cga gcc tat caa	1153
Val Ser Gly Thr Lys Thr Glu Leu Ile Glu Arg Leu Arg Ala Tyr Gln	
370 375 380	
gac caa atc agc cct gtg cca gga gcc ccc aag gcc cct gcc gcc acc	1201
Asp Gln Ile Ser Pro Val Pro Gly Ala Pro Lys Ala Pro Ala Ala Thr	
385 390 395	
tct atc ctg cac aag gct ggc gag gtg gtg gta gcc ttc cca gcg gcc	1249
Ser Ile Leu His Lys Ala Gly Glu Val Val Val Ala Phe Pro Ala Ala	
400 405 410 415	
cgg ctg agc acg ggg cca gcc ctg gtg gca gca ggc ctg gct cca gct	1297
Arg Leu Ser Thr Gly Pro Ala Leu Val Ala Ala Gly Leu Ala Pro Ala	
420 425 430	
gag gtg gtg gtg gcc acg gtg gcc agc agt ggg gtg gtg aag ttt ggc	1345
Glu Val Val Val Ala Thr Val Ala Ser Ser Gly Val Val Lys Phe Gly	
435 440 445	
agc acg ggc tcc acg ccc ccc gtg tct ccc acc ccc tcg gag cgc tca	1393
Ser Thr Gly Ser Thr Pro Pro Val Ser Pro Thr Pro Ser Glu Arg Ser	
450 455 460	
ctg ctc agc acg ggc gat gaa aac tcc acc ccc ggg gac acc ttt ggt	1441
Leu Leu Ser Thr Gly Asp Glu Asn Ser Thr Pro Gly Asp Thr Phe Gly	
465 470 475	
gag atg gtg aca tca cct ctg acg cag ctg acc ctg cag gcc tcg cca	1489
Glu Met Val Thr Ser Pro Leu Thr Gln Leu Thr Leu Gln Ala Ser Pro	
480 485 490 495	
ctg cag atc ctc gtg aag gag gag ggc ccc cgg gcc ggg tcc tgt tgc	1537
Leu Gln Ile Leu Val Lys Glu Glu Gly Pro Arg Ala Gly Ser Cys Cys	
500 505 510	
ctg agc cct ggg ggg cgg gcg gag cta gag ggg cgc gac aag gac cag	1585
Leu Ser Pro Gly Gly Arg Ala Glu Leu Glu Gly Arg Asp Lys Asp Gln	
515 520 525	
atg ctg cag gag aaa gac aag cag atc gag gcg ctg acg cgc atg ctc	1633
Met Leu Gln Glu Lys Asp Lys Gln Ile Glu Ala Leu Thr Arg Met Leu	
530 535 540	
cgg cag aag cag cag ctg gtg gag cgg ctc aag ctg cag ctg gag cag	1681
Arg Gln Lys Gln Gln Leu Val Glu Arg Leu Lys Leu Gln Leu Glu Gln	
545 550 555	
gag aag cga gcc cag cag ccc gcc ccc gcc ccc gcc ccc ctc ggc acc	1729
Glu Lys Arg Ala Gln Gln Pro Ala Pro Ala Pro Ala Pro Leu Gly Thr	
560 565 570 575	
ccc gtg aag cag gag aac agc ttc tcc agc tgc cag ctg agc cag cag	1777

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Pro Val Lys Gln Glu Asn Ser Phe Ser Ser Cys Gln Leu Ser Gln Gln
 580 585 590
 ccc ctg ggc ccc gct cac cca ttc aac ccc agc ctg gcg gcc cca gcc 1825
 Pro Leu Gly Pro Ala His Pro Phe Asn Pro Ser Leu Ala Ala Pro Ala
 595 600 605
 acc aac cac ata gac cct tgt gct gtg gcc ccg ggg ccc ccg tcc gtg 1873
 Thr Asn His Ile Asp Pro Cys Ala Val Ala Pro Gly Pro Pro Ser Val
 610 615 620
 gtg gtg aag cag gaa gcc ttg cag cct gag ccc gag ccg gtc ccc gcc 1921
 Val Val Lys Gln Glu Ala Leu Gln Pro Glu Pro Glu Pro Val Pro Ala
 625 630 635
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 Pro Gln Leu Leu Leu Gly Pro Gln Gly Pro Ser Leu Ile Lys Gly Val
 640 645 650 655
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 Ala Pro Pro Thr Leu Ile Thr Asp Ser Thr Gly Thr His Leu Val Leu
 660 665 670
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 Thr Val Thr Asn Lys Asn Ala Asp Ser Pro Gly Leu Ser Ser Gly Ser
 675 680 685
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 Ala Ala Gln Ile Pro Thr Ala Ala Leu Ala Ser Gly Leu Ala Pro Thr
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gta cct cag aca caa gac acg ttc ccg cag cat gtg ctc agt cag cct	144
Val Pro Gln Thr Gln Asp Thr Phe Pro Gln His Val Leu Ser Gln Pro	
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Gln Gln Val Arg Lys Val Phe Thr Asn Ser Ala Ser Ser Asn Thr Val	
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Leu Pro Tyr Gln Arg His Pro Ala Pro Ala Val Gln Gln Pro Phe Ile	
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aat aag gcc tcc aac agt gtt ctt caa tcc aga aat gct ccg ctt cca	288
Asn Lys Ala Ser Asn Ser Val Leu Gln Ser Arg Asn Ala Pro Leu Pro	
85 90 95	
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Ser Leu Gln Asn Gly Pro Asn Thr Pro Asn Lys Pro Ser Ser Pro Pro	
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Pro Pro Gln Gln Phe Val Val Gln His Ser Leu Phe Gly Ser Pro Val	
115 120 125	
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Ala Lys Thr Lys Asp Pro Pro Arg Tyr Glu Glu Ala Ile Lys Gln Thr	
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Arg Ser Thr Gln Ala Pro Leu Pro Glu Ile Ser Asn Ala His Ser Gln	
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Gln Met Asp Asp Leu Phe Asp Ile Leu Ile Lys Ser Gly Glu Ile Ser	
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Leu Pro Ile Lys Glu Glu Pro Ser Pro Ile Ser Lys Met Arg Pro Val	
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Thr Ala Ser Ile Thr Thr Met Pro Val Asn Thr Val Val Ser Arg Pro	
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Pro Pro Gln Val Gln Met Ala Pro Pro Val Ser Leu Glu Pro Met Gly	
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Val	Pro	Gln	Thr	Gln	Asp	Thr	Phe	Pro	Gln	His	Val	Leu	Ser	Gln	Pro	35	40	45	
Gln	Gln	Val	Arg	Lys	Val	Phe	Thr	Asn	Ser	Ala	Ser	Ser	Asn	Thr	Val	50	55	60	
Leu	Pro	Tyr	Gln	Arg	His	Pro	Ala	Pro	Ala	Val	Gln	Gln	Pro	Phe	Ile	65	70	75	80
Asn	Lys	Ala	Ser	Asn	Ser	Val	Leu	Gln	Ser	Arg	Asn	Ala	Pro	Leu	Pro	85	90	95	
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Pro	Pro	Gln	Gln	Phe	Val	Val	Gln	His	Ser	Leu	Phe	Gly	Ser	Pro	Val	115	120	125	
Ala	Lys	Thr	Lys	Asp	Pro	Pro	Arg	Tyr	Glu	Glu	Ala	Ile	Lys	Gln	Thr	130	135	140	
Arg	Ser	Thr	Gln	Ala	Pro	Leu	Pro	Glu	Ile	Ser	Asn	Ala	His	Ser	Gln	145	150	155	160
Gln	Met	Asp	Asp	Leu	Phe	Asp	Ile	Leu	Ile	Lys	Ser	Gly	Glu	Ile	Ser	165	170	175	
Leu	Pro	Ile	Lys	Glu	Glu	Pro	Ser	Pro	Ile	Ser	Lys	Met	Arg	Pro	Val	180	185	190	
Thr	Ala	Ser	Ile	Thr	Thr	Met	Pro	Val	Asn	Thr	Val	Val	Ser	Arg	Pro	195	200	205	
Pro	Pro	Gln	Val	Gln	Met	Ala	Pro	Pro	Val	Ser	Leu	Glu	Pro	Met	Gly	210	215	220	
Ser	Leu	Ser	Ala	Ser	Leu	Glu	Asn	Gln	Leu	Glu	Ala	Phe	Leu	Asp	Gly	225	230	235	240
Thr	Leu	Pro	Ser	Ala	Asn	Glu	Ile	Pro	Pro	Leu	Gln	Ser	Ser	Ser	Glu	245	250	255	

Asp Arg Glu Pro Phe Ser Leu Ile Glu Asp Leu Gln Asn Asp Leu Leu
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 Ser His Ser Gly Met Leu Asp His Ser His Ser Pro Met Glu Thr Ser
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100 105 110

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Val Ser Ser Cys Pro Phe Ala Pro Gln Gln Ala Ser Gly Lys Gly Gln	
450 455 460	
ggc cac agc tct gac agt ccc cct ccg gct tgt gag acg gct cag ctg	1440
Gly His Ser Ser Asp Ser Pro Pro Pro Ala Cys Glu Thr Ala Gln Leu	
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Leu Pro His Cys Val Glu Ser Ser Gly Gln Thr His Val Leu Ser Ser	
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acg ttt ctc agc ccc cag tgc tcc cct cag cac tcg ccc cgt ggg ggc	1536
Thr Phe Leu Ser Pro Gln Cys Ser Pro Gln His Ser Pro Arg Gly Gly	
500 505 510	
ctg aag agc ccg cag cac atc agc ctg cct cca tca ccc aac aac cat	1584
Leu Lys Ser Pro Gln His Ile Ser Leu Pro Pro Ser Pro Asn Asn His	
515 520 525	
tac ttc ctg gct tcc tct tcg gga gct cag aga gag aac cat ggg gtc	1632
Tyr Phe Leu Ala Ser Ser Ser Gly Ala Gln Arg Glu Asn His Gly Val	
530 535 540	
tct tca ccc agc agc agc caa ggg tgc gca cag atg act ggt tta caa	1680
Ser Ser Pro Ser Ser Ser Gln Gly Cys Ala Gln Met Thr Gly Leu Gln	

545	550	555	560	
tct tct gac aag gtg ggg cca acg ttt tca att cca tcc cca act ttt	1728			
Ser Ser Asp Lys Val Gly Pro Thr Phe Ser Ile Pro Ser Pro Thr Phe				
565 570 575				
tct aag tca agt tca gca gtt tca gat atc acc cag ccc cca tcc tat	1776			
Ser Lys Ser Ser Ser Ala Val Ser Asp Ile Thr Gln Pro Pro Ser Tyr				
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Glu Asp Ala Val Lys Gln Gln Met Thr Arg Ser Gln Gln Met Asp Glu				
595 600 605				
ctc ctg gat gtc ctc att gaa agt gga gaa atg cca gcc gat gcc agg	1872			
Leu Leu Asp Val Leu Ile Glu Ser Gly Glu Met Pro Ala Asp Ala Arg				
610 615 620				
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Glu Asp His Ser Cys Leu Gln Lys Ile Pro Lys Ile Pro Gly Ser Ser				
625 630 635 640				
tgc agc cca act gcc atc ccc ccg aag ccc tcg gct tcc ttt gag cag	1968			
Cys Ser Pro Thr Ala Ile Pro Pro Lys Pro Ser Ala Ser Phe Glu Gln				
645 650 655				
gca tct tcg gga ggc cag atg gcc ttc gat cac tac gca aac gac agt	2016			
Ala Ser Ser Gly Gly Gln Met Ala Phe Asp His Tyr Ala Asn Asp Ser				
660 665 670				
gac gaa cac ctg gaa gtc tta ttg aat tct cac agc ccc atc gga aag	2064			
Asp Glu His Leu Glu Val Leu Leu Asn Ser His Ser Pro Ile Gly Lys				
675 680 685				
gtg agc gat gtt acc ctc ctc aaa atc gga agc gag gag cct cct ttt	2112			
Val Ser Asp Val Thr Leu Leu Lys Ile Gly Ser Glu Glu Pro Pro Phe				
690 695 700				
gac agc atc atg gat ggc ttc cca ggg aag gct gcg gaa gat ctc ttc	2160			
Asp Ser Ile Met Asp Gly Phe Pro Gly Lys Ala Ala Glu Asp Leu Phe				
705 710 715 720				
agt gct cac gag ctc ttg cct ggg ccc ctc tcc ccg atg cat gca cag	2208			
Ser Ala His Glu Leu Leu Pro Gly Pro Leu Ser Pro Met His Ala Gln				
725 730 735				
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Leu Ser Pro Pro Ser Val Asp Ser Ser Gly Leu Gln Leu Ser Leu Pro				
740 745 750				
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Glu Ser Pro Trp Glu Thr Met Glu Trp Leu Asp Leu Thr Pro Pro Ser				
755 760 765				

tcc acg cca ggc ttc agc aac ctt acc tcc agt ggg ccc agc att ttc 2352
 Ser Thr Pro Gly Phe Ser Asn Leu Thr Ser Ser Gly Pro Ser Ile Phe
 770 775 780

aac atc gat ttt ctg gat gtt aca gat ctt aat ctg aat tcc cct atg 2400
 Asn Ile Asp Phe Leu Asp Val Thr Asp Leu Asn Leu Asn Ser Pro Met
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 35 40 45

Gly Ser Thr Pro Asp Ile Lys Ser Thr Glu Ala Pro Leu Asp Thr Ile
 50 55 60

Gln Asp Leu Thr Pro Gly Ser Glu Ser Asp Lys Asn Asp Ala Ala Ser
 65 70 75 80

Gln Pro Gly Asn Gln Ser Asp Pro Gly Lys Gln Val Leu Gly Pro Leu
 85 90 95

Ser Thr Pro Ile Pro Val His Thr Ala Val Lys Ser Lys Ser Leu Gly
 100 105 110

Asp Ser Lys Asn Arg His Lys Lys Pro Lys Asp Pro Lys Pro Lys Val
 115 120 125

Lys Lys Leu Lys Tyr His Gln Tyr Ile Pro Pro Asp Gln Lys Ala Glu
 130 135 140

Asn Ser Pro Pro Pro Met Asp Ser Ala Tyr Ala Arg Leu Leu Gln Gln
 145 150 155 160

Gln Gln Leu Phe Leu Gln Leu Gln Ile Leu Ser Gln Gln Gln Gln Gln
 165 170 175

Gln	Gln	Gln	Gln	Gln	Gln	Gln	Gln	Gln	Gln	Gln	Gln	Gln	Gln	Gln	Gln	Gln	180	185	190
Arg	Phe	Ser	Tyr	Pro	Gly	Met	His	Gln	Thr	His	Leu	Lys	Glu	Pro	Asn		195	200	205
Glu	Gln	Met	Ala	Arg	Asn	Pro	Asn	Pro	Ser	Ser	Thr	Pro	Leu	Ser	Asn		210	215	220
Thr	Pro	Leu	Ser	Pro	Val	Lys	Asn	Xaa	Ile	Ser	Gly	Gln	Thr	Gly	Val		225	230	235 240
Ser	Ser	Leu	Lys	Pro	Gly	Pro	Leu	Pro	Pro	Asn	Leu	Asp	Asp	Leu	Lys		245	250	255
Val	Ser	Glu	Leu	Arg	Gln	Gln	Leu	Arg	Ile	Arg	Gly	Leu	Pro	Val	Ser		260	265	270
Gly	Thr	Lys	Thr	Ala	Leu	Val	Asp	Arg	Leu	Arg	Pro	Phe	Gln	Asp	Cys		275	280	285
Ala	Gly	Asn	Pro	Val	Pro	Asn	Phe	Gly	Asp	Ile	Thr	Thr	Val	Thr	Phe		290	295	300
Pro	Val	Thr	Pro	Asn	Thr	Leu	Pro	Ser	Tyr	Gln	Ser	Ser	Pro	Thr	Gly		305	310	315 320
Phe	Tyr	His	Phe	Gly	Ser	Thr	Ser	Ser	Ser	Pro	Pro	Ile	Ser	Pro	Ala		325	330	335
Ser	Ser	Asp	Leu	Ser	Ala	Ala	Gly	Ser	Leu	Pro	Asp	Thr	Phe	Thr	Asp		340	345	350
Ala	Ser	Pro	Gly	Phe	Gly	Leu	His	Ala	Ser	Pro	Val	Pro	Ala	Cys	Thr		355	360	365
Asp	Glu	Ser	Leu	Leu	Ser	Ser	Leu	Asn	Gly	Gly	Ser	Gly	Pro	Ser	Glu		370	375	380
Pro	Asp	Gly	Leu	Asp	Ser	Glu	Lys	Asp	Lys	Met	Leu	Val	Glu	Lys	Gln		385	390	395 400
Lys	Val	Ile	Asn	Gln	Leu	Thr	Trp	Lys	Leu	Arg	Gln	Glu	Gln	Arg	Gln		405	410	415
Val	Glu	Glu	Leu	Arg	Met	Gln	Leu	Gln	Lys	Gln	Lys	Ser	Ser	Cys	Ser		420	425	430
Asp	Gln	Lys	Pro	Leu	Pro	Phe	Leu	Ala	Thr	Thr	Ile	Lys	Gln	Glu	Asp		435	440	445
Val	Ser	Ser	Cys	Pro	Phe	Ala	Pro	Gln	Gln	Ala	Ser	Gly	Lys	Gly	Gln		450	455	460

Gly	His	Ser	Ser	Asp	Ser	Pro	Pro	Pro	Ala	Cys	Glu	Thr	Ala	Gln	Leu	465	470	475	480
Leu	Pro	His	Cys	Val	Glu	Ser	Ser	Gly	Gln	Thr	His	Val	Leu	Ser	Ser	485	490	495	
Thr	Phe	Leu	Ser	Pro	Gln	Cys	Ser	Pro	Gln	His	Ser	Pro	Arg	Gly	Gly	500	505	510	
Leu	Lys	Ser	Pro	Gln	His	Ile	Ser	Leu	Pro	Pro	Ser	Pro	Asn	Asn	His	515	520	525	
Tyr	Phe	Leu	Ala	Ser	Ser	Ser	Gly	Ala	Gln	Arg	Glu	Asn	His	Gly	Val	530	535	540	
Ser	Ser	Pro	Ser	Ser	Ser	Gln	Gly	Cys	Ala	Gln	Met	Thr	Gly	Leu	Gln	545	550	555	560
Ser	Ser	Asp	Lys	Val	Gly	Pro	Thr	Phe	Ser	Ile	Pro	Ser	Pro	Thr	Phe	565	570	575	
Ser	Lys	Ser	Ser	Ser	Ala	Val	Ser	Asp	Ile	Thr	Gln	Pro	Pro	Ser	Tyr	580	585	590	
Glu	Asp	Ala	Val	Lys	Gln	Gln	Met	Thr	Arg	Ser	Gln	Gln	Met	Asp	Glu	595	600	605	
Leu	Leu	Asp	Val	Leu	Ile	Glu	Ser	Gly	Glu	Met	Pro	Ala	Asp	Ala	Arg	610	615	620	
Glu	Asp	His	Ser	Cys	Leu	Gln	Lys	Ile	Pro	Lys	Ile	Pro	Gly	Ser	Ser	625	630	635	640
Cys	Ser	Pro	Thr	Ala	Ile	Pro	Pro	Lys	Pro	Ser	Ala	Ser	Phe	Glu	Gln	645	650	655	
Ala	Ser	Ser	Gly	Gly	Gln	Met	Ala	Phe	Asp	His	Tyr	Ala	Asn	Asp	Ser	660	665	670	
Asp	Glu	His	Leu	Glu	Val	Leu	Leu	Asn	Ser	His	Ser	Pro	Ile	Gly	Lys	675	680	685	
Val	Ser	Asp	Val	Thr	Leu	Leu	Lys	Ile	Gly	Ser	Glu	Glu	Pro	Pro	Phe	690	695	700	
Asp	Ser	Ile	Met	Asp	Gly	Phe	Pro	Gly	Lys	Ala	Ala	Glu	Asp	Leu	Phe	705	710	715	720
Ser	Ala	His	Glu	Leu	Leu	Pro	Gly	Pro	Leu	Ser	Pro	Met	His	Ala	Gln	725	730	735	
Leu	Ser	Pro	Pro	Ser	Val	Asp	Ser	Ser	Gly	Leu	Gln	Leu	Ser	Leu	Pro				

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740	745	750
Glu Ser Pro Trp Glu Thr Met	Glu Trp Leu Asp Leu Thr Pro Pro Ser	
755	760	765
Ser Thr Pro Gly Phe Ser Asn Leu Thr Ser Ser Gly Pro Ser Ile Phe		
770	775	780
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 gagcctgttg ctggtggaga acagggggcg cctggccaag ggaccagcgg cttgctgaga 240
 ctcaac atg aca ctc ctg ggg tct gag cat tcc ttg ctg att agg agc 288
 Met Thr Leu Leu Gly Ser Glu His Ser Leu Leu Ile Arg Ser
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 Lys Phe Arg Ser Val Leu Gln Leu Arg Leu Gln Gln Arg Arg Thr Gln
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 Glu Phe His Glu Gln Arg Lys His Leu Asp Ser Asp Lys Ala Lys Asn
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 Ser Leu Lys Arg Lys Ala Arg Asn Arg Cys Asn Ser Ala Asp Leu Val
 65 70 75

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Asn Met His Ile Leu Gln Ala Ser Thr Ala Glu Arg Ser Ile Pro Thr	
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Ala Gln Met Lys Leu Lys Arg Ala Arg Leu Ala Asp Asp Leu Asn Glu	
95 100 105 110	
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Lys Ile Ala Leu Arg Pro Gly Pro Leu Glu Leu Val Glu Lys Asn Ile	
115 120 125	
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Leu Pro Val Asp Ser Ala Val Lys Glu Ala Ile Lys Gly Asn Gln Val	
130 135 140	
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Ser Phe Ser Lys Ser Thr Asp Ala Phe Ala Phe Glu Glu Asp Ser Ser	
145 150 155	
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Ser Asp Gly Leu Ser Pro Asp Gln Thr Arg Ser Glu Asp Pro Gln Asn	
160 165 170	
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Ser Ala Gly Ser Pro Pro Asp Ala Lys Ala Ser Asp Thr Pro Ser Thr	
175 180 185 190	
ggg tct ctg ggg aca aac cag gat ctt gct tct ggc tca gaa aat gac	864
Gly Ser Leu Gly Thr Asn Gln Asp Leu Ala Ser Gly Ser Glu Asn Asp	
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Arg Asn Asp Ser Ala Ser Gln Pro Ser His Gln Ser Asp Ala Gly Lys	
210 215 220	
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Gln Gly Leu Gly Pro Pro Ser Thr Pro Ile Ala Val His Ala Ala Val	
225 230 235	
aag tcc aaa tcc ttg ggt gac agt aag aac cgc cac aaa aag ccc aag	1008
Lys Ser Lys Ser Leu Gly Asp Ser Lys Asn Arg His Lys Lys Pro Lys	
240 245 250	
gac ccc aag cca aag gtg aag aag ctt aaa tat cac cag tac att ccc	1056
Asp Pro Lys Pro Lys Val Lys Lys Leu Lys Tyr His Gln Tyr Ile Pro	
255 260 265 270	
cca gac cag aag gca gag aag tcc cct cca cct atg gac tca gcc tac	1104
Pro Asp Gln Lys Ala Glu Lys Ser Pro Pro Pro Met Asp Ser Ala Tyr	
275 280 285	

Glu	Ser	Leu	Met	Ser	Ser	Leu	Asn	Gly	Gly	Ser	Val	Pro	Ser	Glu	Leu		
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gat	ggg	ctg	gac	tcc	gag	aag	gac	aag	atg	ctg	gtg	gag	aag	cag	aag	1824	
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gtg	atc	aat	gaa	ctc	acc	tgg	aaa	ctc	cag	caa	gag	cag	agg	cag	gtg	1872	
Val	Ile	Asn	Glu	Leu	Thr	Trp	Lys	Leu	Gln	Gln	Glu	Gln	Arg	Gln	Val		
			530						535				540				
gag	gag	ctg	agg	atg	cag	ctt	cag	aag	cag	aaa	agg	aat	aac	tgt	tca	1920	
Glu	Glu	Leu	Arg	Met	Gln	Leu	Gln	Lys	Gln	Lys	Arg	Asn	Asn	Cys	Ser		
		545						550				555					
gag	aag	aag	ccg	ctg	cct	ttc	ctg	gct	gcc	tcc	atc	aag	cag	gaa	gag	1968	
Glu	Lys	Lys	Pro	Leu	Pro	Phe	Leu	Ala	Ala	Ser	Ile	Lys	Gln	Glu	Glu		
	560						565				570						
gct	gtc	tcc	agc	tgt	cct	ttt	gca	tcc	caa	gta	cct	gtg	aaa	aga	caa	2016	
Ala	Val	Ser	Ser	Cys	Pro	Phe	Ala	Ser	Gln	Val	Pro	Val	Lys	Arg	Gln		
	575				580						585				590		
agc	agc	agc	tca	gag	tgt	cac	cca	ccg	gct	tgt	gaa	gct	gct	caa	ctc	2064	
Ser	Ser	Ser	Ser	Glu	Cys	His	Pro	Pro	Ala	Cys	Glu	Ala	Ala	Gln	Leu		
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cag	cct	ctt	gga	aat	gct	cat	tgt	gtg	gag	tcc	tca	gat	caa	acc	aat	2112	
Gln	Pro	Leu	Gly	Asn	Ala	His	Cys	Val	Glu	Ser	Ser	Asp	Gln	Thr	Asn		
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Val	Leu	Ser	Ser	Thr	Phe	Leu	Ser	Pro	Gln	Cys	Ser	Pro	Gln	His	Ser		
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ccg	ctg	ggg	gct	gtg	aaa	agc	cca	cag	cac	atc	agt	ttg	ccc	cca	tca	2208	
Pro	Leu	Gly	Ala	Val	Lys	Ser	Pro	Gln	His	Ile	Ser	Leu	Pro	Pro	Ser		
	640						645				650						
ccc	aac	aac	cct	cac	ttt	ctg	ccc	tca	tcc	tcc	ggg	gcc	cag	gga	gaa	2256	
Pro	Asn	Asn	Pro	His	Phe	Leu	Pro	Ser	Ser	Ser	Gly	Ala	Gln	Gly	Glu		
	655					660				665				670			
ggg	cac	agg	gtc	tcc	tcg	ccc	atc	agc	agc	cag	gtg	tgc	act	gca	cag	2304	
Gly	His	Arg	Val	Ser	Ser	Pro	Ile	Ser	Ser	Gln	Val	Cys	Thr	Ala	Gln		
				675					680				685				
atg	gct	ggt	tta	cac	tct	tct	gat	aag	gtg	ggg	cca	aag	ttt	tca	att	2352	
Met	Ala	Gly	Leu	His	Ser	Ser	Asp	Lys	Val	Gly	Pro	Lys	Phe	Ser	Ile		
			690					695					700				
cca	tcc	cca	act	ttt	tct	aag	tca	agt	tca	gca	att	tca	gag	gta	aca	2400	
Pro	Ser	Pro	Thr	Phe	Ser	Lys	Ser	Ser	Ser	Ala	Ile	Ser	Glu	Val	Thr		

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Gln Pro Ser Tyr Glu Asp Ala Val Lys Gln Gln Met Thr Arg Ser			
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Gln Gln Met Asp Glu Leu Leu Asp Val Leu Ile Glu Ser Gly Glu Met			
735	740	745	750
cca gca gac gct aga gag gat cac tca tgt ctt caa aaa gtc cca aag			2544
Pro Ala Asp Ala Arg Glu Asp His Ser Cys Leu Gln Lys Val Pro Lys			
755	760	765	
ata ccc aga tct tcc cga agt cca act gct gtc ctc acc aag ccc tcg			2592
Ile Pro Arg Ser Ser Arg Ser Pro Thr Ala Val Leu Thr Lys Pro Ser			
770	775	780	
gct tcc ttt gaa caa gcc tct tca ggc agc cag atc ccc ttt gat ccc			2640
Ala Ser Phe Glu Gln Ala Ser Ser Gly Ser Gln Ile Pro Phe Asp Pro			
785	790	795	
tat gcc acc gac agt gat gag cat ctt gaa gtc tta tta aat tcc cag			2688
Tyr Ala Thr Asp Ser Asp Glu His Leu Glu Val Leu Leu Asn Ser Gln			
800	805	810	
agc ccc cta gga aag atg agt gat gtc acc ctt cta aaa att ggg agc			2736
Ser Pro Leu Gly Lys Met Ser Asp Val Thr Leu Leu Lys Ile Gly Ser			
815	820	825	830
gaa gag cct cac ttt gat ggg ata atg gat gga ttc tct ggg aag gct			2784
Glu Glu Pro His Phe Asp Gly Ile Met Asp Gly Phe Ser Gly Lys Ala			
835	840	845	
gca gaa gac ctc ttc aat gca cat gag atc ttg cca ggc ccc ctc tct			2832
Ala Glu Asp Leu Phe Asn Ala His Glu Ile Leu Pro Gly Pro Leu Ser			
850	855	860	
cca atg cag aca cag ttt tca ccc tct tct gtg gac agc aat ggg ctg			2880
Pro Met Gln Thr Gln Phe Ser Pro Ser Ser Val Asp Ser Asn Gly Leu			
865	870	875	
cag tta agc ttc act gaa tct ccc tgg gaa acc atg gag tgg ctg gac			2928
Gln Leu Ser Phe Thr Glu Ser Pro Trp Glu Thr Met Glu Trp Leu Asp			
880	885	890	
ctc act ccg cca aat tcc aca cca ggc ttt agc gcc ctc acc acc agc			2976
Leu Thr Pro Pro Asn Ser Thr Pro Gly Phe Ser Ala Leu Thr Thr Ser			
895	900	905	910
agc ccc agc atc ttc aac atc gat ttc ctg gat gtc act gat ctc aat			3024
Ser Pro Ser Ile Phe Asn Ile Asp Phe Leu Asp Val Thr Asp Leu Asn			
915	920	925	

ttg aat tct tcc atg gac ctt cac ttg cag cag tgg tag
 Leu Asn Ser Ser Met Asp Leu His Leu Gln Gln Trp
 930 935

3063

<210> 28
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 <212> PRT
 <213> Homo sapiens

<400> 28
 Met Thr Leu Leu Gly Ser Glu His Ser Leu Leu Ile Arg Ser Lys Phe
 1 5 10 15
 Arg Ser Val Leu Gln Leu Arg Leu Gln Gln Arg Arg Thr Gln Glu Gln
 20 25 30
 Leu Ala Asn Gln Gly Ile Ile Pro Pro Leu Lys Arg Pro Ala Glu Phe
 35 40 45
 His Glu Gln Arg Lys His Leu Asp Ser Asp Lys Ala Lys Asn Ser Leu
 50 55 60
 Lys Arg Lys Ala Arg Asn Arg Cys Asn Ser Ala Asp Leu Val Asn Met
 65 70 75 80
 His Ile Leu Gln Ala Ser Thr Ala Glu Arg Ser Ile Pro Thr Ala Gln
 85 90 95
 Met Lys Leu Lys Arg Ala Arg Leu Ala Asp Asp Leu Asn Glu Lys Ile
 100 105 110
 Ala Leu Arg Pro Gly Pro Leu Glu Leu Val Glu Lys Asn Ile Leu Pro
 115 120 125
 Val Asp Ser Ala Val Lys Glu Ala Ile Lys Gly Asn Gln Val Ser Phe
 130 135 140
 Ser Lys Ser Thr Asp Ala Phe Ala Phe Glu Glu Asp Ser Ser Ser Asp
 145 150 155 160
 Gly Leu Ser Pro Asp Gln Thr Arg Ser Glu Asp Pro Gln Asn Ser Ala
 165 170 175
 Gly Ser Pro Pro Asp Ala Lys Ala Ser Asp Thr Pro Ser Thr Gly Ser
 180 185 190
 Leu Gly Thr Asn Gln Asp Leu Ala Ser Gly Ser Glu Asn Asp Arg Asn
 195 200 205
 Asp Ser Ala Ser Gln Pro Ser His Gln Ser Asp Ala Gly Lys Gln Gly
 210 215 220

Phe Glu Gln Ala Ser Ser Gly Ser Gln Ile Pro Phe Asp Pro Tyr Ala
785 790 795 800

Thr Asp Ser Asp Glu His Leu Glu Val Leu Leu Asn Ser Gln Ser Pro
805 810 815

Leu Gly Lys Met Ser Asp Val Thr Leu Leu Lys Ile Gly Ser Glu Glu
820 825 830

Pro His Phe Asp Gly Ile Met Asp Gly Phe Ser Gly Lys Ala Ala Glu
835 840 845

Asp Leu Phe Asn Ala His Glu Ile Leu Pro Gly Pro Leu Ser Pro Met
850 855 860

Gln Thr Gln Phe Ser Pro Ser Ser Val Asp Ser Asn Gly Leu Gln Leu
865 870 875 880

Ser Phe Thr Glu Ser Pro Trp Glu Thr Met Glu Trp Leu Asp Leu Thr
885 890 895

Pro Pro Asn Ser Thr Pro Gly Phe Ser Ala Leu Thr Thr Ser Ser Pro
900 905 910

Ser Ile Phe Asn Ile Asp Phe Leu Asp Val Thr Asp Leu Asn Leu Asn
915 920 925

Ser Ser Met Asp Leu His Leu Gln Gln Trp
930 935

<210> 29

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<213> Homo sapiens

<400> 29

Met Thr Leu Leu Gly Ser Glu His Ser Leu Leu Ile Arg Ser Lys Phe
1 5 10 15

Arg Ser Val Leu Gln Leu Arg Leu Gln Gln Arg Arg Thr Gln Glu Gln
20 25 30

Leu Ala Asn Gln Gly Ile Ile Pro Pro Leu Lys Arg Pro Ala Glu Phe
35 40 45

His Glu Gln Arg Lys His Leu Asp Ser Asp Lys Ala Lys Asn Ser Leu
50 55 60

Lys Arg Lys Ala Arg Asn Arg Cys Asn Ser Ala Asp Leu Val Asn Met
65 70 75 80

His	Ile	Leu	Gln	Ala	Ser	Thr	Ala	Glu	Arg	Ser	Ile	Pro	Thr	Ala	Gln	85	90	95	
Met	Lys	Leu	Lys	Arg	Ala	Arg	Leu	Ala	Asp	Asp	Leu	Asn	Glu	Lys	Ile	100	105	110	
Ala	Leu	Arg	Pro	Gly	Pro	Leu	Glu	Leu	Val	Glu	Lys	Asn	Ile	Leu	Pro	115	120	125	
Val	Asp	Ser	Ala	Val	Lys	Glu	Ala	Ile	Lys	Gly	Asn	Gln	Val	Ser	Phe	130	135	140	
Ser	Lys	Ser	Thr	Asp	Ala	Phe	Ala	Phe	Glu	Glu	Asp	Ser	Ser	Ser	Asp	145	150	155	160
Gly	Leu	Ser	Pro	Asp	Gln	Thr	Arg	Ser	Glu	Asp	Pro	Gln	Asn	Ser	Ala	165	170	175	
Gly	Ser	Pro	Pro	Asp	Ala	Lys	Ala	Ser	Asp	Thr	Pro	Ser	Thr	Gly	Ser	180	185	190	
Leu	Gly	Thr	Asn	Gln	Asp	Leu	Ala	Ser	Gly	Ser	Glu	Asn	Asp	Arg	Asn	195	200	205	
Asp	Ser	Ala	Ser	Gln	Pro	Ser	His	Gln	Ser	Asp	Ala	Gly	Lys	Gln	Gly	210	215	220	
Leu	Gly	Pro	Pro	Ser	Thr	Pro	Ile	Ala	Val	His	Ala	Ala	Val	Lys	Ser	225	230	235	240
Lys	Ser	Leu	Gly	Asp	Ser	Lys	Asn	Arg	His	Lys	Lys	Pro	Lys	Asp	Pro	245	250	255	
Lys	Pro	Lys	Val	Lys	Lys	Leu	Lys	Tyr	His	Gln	Tyr	Ile	Pro	Pro	Asp	260	265	270	
Gln	Lys	Ala	Glu	Lys	Ser	Pro	Pro	Pro	Met	Asp	Ser	Ala	Tyr	Ala	Arg	275	280	285	
Leu	Leu	Gln	Gln	Gln	Gln	Leu	Phe	Leu	Gln	Leu	Gln	Ile	Leu	Ser	Gln	290	295	300	
Gln	Gln	Gln	Gln	Gln	Gln	His	Arg	Phe	Ser	Tyr	Leu	Gly	Met	His	Gln	305	310	315	320
Ala	Gln	Leu	Lys	Glu	Pro	Asn	Glu	Gln	Met	Val	Arg	Asn	Pro	Asn	Ser	325	330	335	
Ser	Ser	Thr	Pro	Leu	Ser	Asn	Thr	Pro	Leu	Ser	Pro	Val	Lys	Asn	Ser	340	345	350	
Phe	Ser	Gly	Gln	Thr	Gly	Val	Ser	Ser	Phe	Lys	Pro	Gly	Pro	Leu	Pro	355	360	365	

Pro	Asn	Leu	Asp	Asp	Leu	Lys	Val	Ser	Glu	Leu	Arg	Gln	Gln	Leu	Arg	370	375	380	
Ile	Arg	Gly	Leu	Pro	Val	Ser	Gly	Thr	Lys	Thr	Ala	Leu	Met	Asp	Arg	385	390	395	400
Leu	Arg	Pro	Phe	Gln	Asp	Cys	Ser	Gly	Asn	Pro	Val	Pro	Asn	Phe	Gly	405	410	415	
Asp	Ile	Thr	Thr	Val	Thr	Phe	Pro	Val	Thr	Pro	Asn	Thr	Leu	Pro	Asn	420	425	430	
Tyr	Gln	Ser	Ser	Ser	Ser	Thr	Ser	Ala	Leu	Ser	Asn	Gly	Phe	Tyr	His	435	440	445	
Phe	Gly	Ser	Thr	Ser	Ser	Ser	Pro	Pro	Ile	Ser	Pro	Ala	Ser	Ser	Asp	450	455	460	
Leu	Ser	Val	Ala	Gly	Ser	Leu	Pro	Asp	Thr	Phe	Asn	Asp	Ala	Ser	Pro	465	470	475	480
Ser	Phe	Gly	Leu	His	Pro	Ser	Pro	Val	His	Val	Cys	Thr	Glu	Glu	Ser	485	490	495	
Leu	Met	Ser	Ser	Leu	Asn	Gly	Gly	Ser	Val	Pro	Ser	Glu	Leu	Asp	Gly	500	505	510	
Leu	Asp	Ser	Glu	Lys	Asp	Lys	Met	Leu	Val	Glu	Lys	Gln	Lys	Val	Ile	515	520	525	
Asn	Glu	Leu	Thr	Trp	Lys	Leu	Gln	Gln	Glu	Gln	Arg	Gln	Val	Glu	Glu	530	535	540	
Leu	Arg	Met	Gln	Leu	Gln	Lys	Gln	Lys	Arg	Asn	Asn	Cys	Ser	Glu	Lys	545	550	555	560
Lys	Pro	Leu	Pro	Phe	Leu	Ala	Ala	Ser	Ile	Lys	Gln	Glu	Glu	Ala	Val	565	570	575	
Ser	Ser	Cys	Pro	Phe	Ala	Ser	Gln	Val	Pro	Val	Lys	Arg	Gln	Ser	Ser	580	585	590	
Ser	Ser	Glu	Cys	His	Pro	Pro	Ala	Cys	Glu	Ala	Ala	Gln	Leu	Gln	Pro	595	600	605	
Leu	Gly	Asn	Ala	His	Cys	Val	Glu	Ser	Ser	Asp	Gln	Thr	Asn	Val	Leu	610	615	620	
Ser	Ser	Thr	Phe	Leu	Ser	Pro	Gln	Cys	Ser	Pro	Gln	His	Ser	Pro	Leu	625	630	635	640
Gly	Ala	Val	Lys	Ser	Pro	Gln	His	Ile	Ser	Leu	Pro	Pro	Ser	Pro	Asn				

Ser Ser Met Asp Leu His Leu Gln Gln Trp
930 935

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<211> 4960
<212> DNA
<213> Mus musculus

<220>
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cctcgcgagc ggcgaggggg gaggcgccag ttttctgggg acactggcgg ccactgtgcg 120
tcctcctacc caaggagct cccaagagt tggatgaatt ctgggttggt agctgctgtc 180
ctctgggctc ccgggagcca gtttctggtg gaaagcgggg cgctggcca acgaccagcg 240
gcttgctgag actcacc atg aca ctc ctg ggg tct gaa cac tct ttg ctg 290
Met Thr Leu Leu Gly Ser Glu His Ser Leu Leu
1 5 10
att aga agg aag ttc cga tca gtc tta cag tta cgg ctt caa cag aga 338
Ile Arg Arg Lys Phe Arg Ser Val Leu Gln Leu Arg Leu Gln Gln Arg
15 20 25
agg acc cag gag cag ctg gct aac caa ggc tta ata ccg cca ctg aaa 386
Arg Thr Gln Glu Gln Leu Ala Asn Gln Gly Leu Ile Pro Pro Leu Lys
30 35 40
ggt cca act gaa ttc cat gac ccg aga aaa caa ttg gat agt gcc aag 434
Gly Pro Thr Glu Phe His Asp Pro Arg Lys Gln Leu Asp Ser Ala Lys
45 50 55
act gaa gat tcc ctg agg cgc aag ggc aga aac agg tcc gac cgt gcc 482
Thr Glu Asp Ser Leu Arg Arg Lys Gly Arg Asn Arg Ser Asp Arg Ala
60 65 70 75
agc ctg gtt act atg cac att ctc caa gcc tcc acg gca gaa agg tcc 530
Ser Leu Val Thr Met His Ile Leu Gln Ala Ser Thr Ala Glu Arg Ser
80 85 90
att cca act gct cag atg aag ctc aaa aga gcc cgc ctt gca gat gac 578
Ile Pro Thr Ala Gln Met Lys Leu Lys Arg Ala Arg Leu Ala Asp Asp
95 100 105
ctc aat gag aag atc gct ctc cgc caa ggg ccc ttg gaa ctg gtg gag 626
Leu Asn Glu Lys Ile Ala Leu Arg Gln Gly Pro Leu Glu Leu Val Glu
110 115 120

aag aac att ctg ccg atg gat tct tcc gtg aaa gag gct ata aaa ggt	674
Lys Asn Ile Leu Pro Met Asp Ser Ser Val Lys Glu Ala Ile Lys Gly	
125 130 135	
act gag gtg agc ctc tcc aag gca gca gat gca ttc gcc ttt gag gat	722
Thr Glu Val Ser Leu Ser Lys Ala Ala Asp Ala Phe Ala Phe Glu Asp	
140 145 150 155	
gac agc agt aga gat ggg ctc tct cca gat cag gct agg agc gag gac	770
Asp Ser Ser Arg Asp Gly Leu Ser Pro Asp Gln Ala Arg Ser Glu Asp	
160 165 170	
ccc cag ggc tct aca gga tcc acc cca gac atc aaa tcc act gag gct	818
Pro Gln Gly Ser Thr Gly Ser Thr Pro Asp Ile Lys Ser Thr Glu Ala	
175 180 185	
cct ctg gac aca atc cag gat ctc act cct ggc tca gaa agt gac aag	866
Pro Leu Asp Thr Ile Gln Asp Leu Thr Pro Gly Ser Glu Ser Asp Lys	
190 195 200	
aat gat gca gcc tcc cag cca ggc aac cag tca gac cct ggg aag cag	914
Asn Asp Ala Ala Ser Gln Pro Gly Asn Gln Ser Asp Pro Gly Lys Gln	
205 210 215	
gtt ctc ggc ccc ctc agc acc ccg att cct gtg cac act gct gta aag	962
Val Leu Gly Pro Leu Ser Thr Pro Ile Pro Val His Thr Ala Val Lys	
220 225 230 235	
tcc aag tct ttg ggt gac agt aag aac cgc cac aaa aag ccc aaa gac	1010
Ser Lys Ser Leu Gly Asp Ser Lys Asn Arg His Lys Lys Pro Lys Asp	
240 245 250	
ccc aaa cca aag gtg aag aag ctc aaa tac cat cag tac atc ccc cca	1058
Pro Lys Pro Lys Val Lys Lys Leu Lys Tyr His Gln Tyr Ile Pro Pro	
255 260 265	
gac cag aag gca gag aag tct ccc cca ccc atg gac tct gcc tat gcc	1106
Asp Gln Lys Ala Glu Lys Ser Pro Pro Pro Met Asp Ser Ala Tyr Ala	
270 275 280	
cgg ctg ctc cag caa cag cag cta ttc ctg cag cta cag atc ctc agc	1154
Arg Leu Leu Gln Gln Gln Gln Leu Phe Leu Gln Leu Gln Ile Leu Ser	
285 290 295	
cag cag cag caa cag cag cag caa cag cag cag cag caa cag cag cag	1202
Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln	
300 305 310 315	
cag cag cag cag cag cgg ttc agc tac cct ggg atg cac caa aca cac	1250
Gln Gln Gln Gln Gln Arg Phe Ser Tyr Pro Gly Met His Gln Thr His	
320 325 330	

Gln	Glu	Gln	Arg	Gln	Val	Glu	Glu	Leu	Arg	Met	Gln	Leu	Gln	Lys	Gln		
540					545					550					555		
aag	agc	agc	tgc	agc	gac	cag	aag	cca	ctg	ccc	ttc	ttg	gcc	acc	acc	1970	
Lys	Ser	Ser	Cys	Ser	Asp	Gln	Lys	Pro	Leu	Pro	Phe	Leu	Ala	Thr	Thr		
				560					565					570			
atc	aaa	cag	gaa	gat	gtc	tcc	agc	tgc	ccc	ttc	gca	ccc	cag	cag	gcg	2018	
Ile	Lys	Gln	Glu	Asp	Val	Ser	Ser	Cys	Pro	Phe	Ala	Pro	Gln	Gln	Ala		
			575					580					585				
tct	ggg	aag	gga	cag	ggc	cac	agc	tct	gac	agt	ccc	cct	ccg	gct	tgt	2066	
Ser	Gly	Lys	Gly	Gln	Gly	His	Ser	Ser	Asp	Ser	Pro	Pro	Pro	Ala	Cys		
	590						595					600					
gag	acg	gct	cag	ctg	ctg	cct	cac	tgt	gtg	gag	tcc	tca	ggc	caa	acc	2114	
Glu	Thr	Ala	Gln	Leu	Leu	Pro	His	Cys	Val	Glu	Ser	Ser	Gly	Gln	Thr		
	605					610					615						
cat	gta	ctc	tcg	tcc	acg	ttt	ctc	agc	ccc	cag	tgc	tcc	cct	cag	cac	2162	
His	Val	Leu	Ser	Ser	Thr	Phe	Leu	Ser	Pro	Gln	Cys	Ser	Pro	Gln	His		
	620				625					630					635		
tcg	ccc	ctg	ggg	ggc	ctg	aag	agc	ccg	cag	cac	atc	agc	ctg	cct	cca	2210	
Ser	Pro	Leu	Gly	Gly	Leu	Lys	Ser	Pro	Gln	His	Ile	Ser	Leu	Pro	Pro		
			640						645					650			
tca	ccc	aac	aac	cat	tac	ttc	ctg	gct	tcc	tct	tcg	gga	gct	cag	aga	2258	
Ser	Pro	Asn	Asn	His	Tyr	Phe	Leu	Ala	Ser	Ser	Ser	Gly	Ala	Gln	Arg		
			655					660					665				
gag	aac	cat	ggg	gtc	tct	tca	ccc	agc	agc	agc	caa	ggg	tgc	gca	cag	2306	
Glu	Asn	His	Gly	Val	Ser	Ser	Pro	Ser	Ser	Ser	Gln	Gly	Cys	Ala	Gln		
	670						675					680					
atg	act	ggt	tta	caa	tct	tct	gac	aag	gtg	ggg	cca	acg	ttt	tca	att	2354	
Met	Thr	Gly	Leu	Gln	Ser	Ser	Asp	Lys	Val	Gly	Pro	Thr	Phe	Ser	Ile		
	685					690					695						
cca	tcc	cca	act	ttt	tct	aag	tca	agt	tca	gca	gtt	tca	gat	atc	acc	2402	
Pro	Ser	Pro	Thr	Phe	Ser	Lys	Ser	Ser	Ser	Ala	Val	Ser	Asp	Ile	Thr		
	700				705					710					715		
cag	ccc	cca	tcc	tat	gaa	gat	gca	gtg	aag	cag	caa	atg	act	cgg	agt	2450	
Gln	Pro	Pro	Ser	Tyr	Glu	Asp	Ala	Val	Lys	Gln	Gln	Met	Thr	Arg	Ser		
				720					725					730			
cag	cag	atg	gac	gaa	ctc	ctg	gat	gtc	ctc	att	gaa	agt	gga	gaa	atg	2498	
Gln	Gln	Met	Asp	Glu	Leu	Leu	Asp	Val	Leu	Ile	Glu	Ser	Gly	Glu	Met		
			735					740					745				
cca	gcc	gat	gcc	agg	gaa	gat	cat	tca	tgt	ctt	cag	aaa	att	cca	aag	2546	
Pro	Ala	Asp	Ala	Arg	Glu	Asp	His	Ser	Cys	Leu	Gln	Lys	Ile	Pro	Lys		

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gtcaacttgt aaaaaaaaaa aaaaaaaaaa 4960

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<211> 935

<212> PRT

<213> Mus musculus

<400> 31

Met Thr Leu Leu Gly Ser Glu His Ser Leu Leu Ile Arg Arg Lys Phe
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Arg Ser Val Leu Gln Leu Arg Leu Gln Gln Arg Arg Thr Gln Glu Gln
20 25 30

Leu Ala Asn Gln Gly Leu Ile Pro Pro Leu Lys Gly Pro Thr Glu Phe
35 40 45

His Asp Pro Arg Lys Gln Leu Asp Ser Ala Lys Thr Glu Asp Ser Leu
50 55 60

Arg Arg Lys Gly Arg Asn Arg Ser Asp Arg Ala Ser Leu Val Thr Met
65 70 75 80

His Ile Leu Gln Ala Ser Thr Ala Glu Arg Ser Ile Pro Thr Ala Gln
85 90 95

Met Lys Leu Lys Arg Ala Arg Leu Ala Asp Asp Leu Asn Glu Lys Ile
100 105 110

Ala Leu Arg Gln Gly Pro Leu Glu Leu Val Glu Lys Asn Ile Leu Pro
115 120 125

Met Asp Ser Ser Val Lys Glu Ala Ile Lys Gly Thr Glu Val Ser Leu
130 135 140

Ser Lys Ala Ala Asp Ala Phe Ala Phe Glu Asp Asp Ser Ser Arg Asp
145 150 155 160

Gly Leu Ser Pro Asp Gln Ala Arg Ser Glu Asp Pro Gln Gly Ser Thr
165 170 175

Gly Ser Thr Pro Asp Ile Lys Ser Thr Glu Ala Pro Leu Asp Thr Ile
180 185 190

Gln Asp Leu Thr Pro Gly Ser Glu Ser Asp Lys Asn Asp Ala Ala Ser
195 200 205

Gln Pro Gly Asn Gln Ser Asp Pro Gly Lys Gln Val Leu Gly Pro Leu
210 215 220

Ser Thr Pro Ile Pro Val His Thr Ala Val Lys Ser Lys Ser Leu Gly
 225 230 235 240
 Asp Ser Lys Asn Arg His Lys Lys Pro Lys Asp Pro Lys Pro Lys Val
 245 250 255
 Lys Lys Leu Lys Tyr His Gln Tyr Ile Pro Pro Asp Gln Lys Ala Glu
 260 265 270
 Lys Ser Pro Pro Pro Met Asp Ser Ala Tyr Ala Arg Leu Leu Gln Gln
 275 280 285
 Gln Gln Leu Phe Leu Gln Leu Gln Ile Leu Ser Gln Gln Gln Gln Gln
 290 295 300
 Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln
 305 310 315 320
 Arg Phe Ser Tyr Pro Gly Met His Gln Thr His Leu Lys Glu Pro Asn
 325 330 335
 Glu Gln Met Ala Arg Asn Pro Asn Pro Ser Ser Thr Pro Leu Ser Asn
 340 345 350
 Thr Pro Leu Ser Pro Val Lys Asn Ser Ile Ser Gly Gln Thr Gly Val
 355 360 365
 Ser Ser Leu Lys Pro Gly Pro Leu Pro Pro Asn Leu Asp Asp Leu Lys
 370 375 380
 Val Ser Glu Leu Arg Gln Gln Leu Arg Ile Arg Gly Leu Pro Val Ser
 385 390 395 400
 Gly Thr Lys Thr Ala Leu Val Asp Arg Leu Arg Pro Phe Gln Asp Cys
 405 410 415
 Ala Gly Asn Pro Val Pro Asn Phe Gly Asp Ile Thr Thr Val Thr Phe
 420 425 430
 Pro Val Thr Pro Asn Thr Leu Pro Ser Tyr Gln Ser Ser Pro Thr Gly
 435 440 445
 Phe Tyr His Phe Gly Ser Thr Ser Ser Ser Pro Pro Ile Ser Pro Ala
 450 455 460
 Ser Ser Asp Leu Ser Ala Ala Gly Ser Leu Pro Asp Thr Phe Thr Asp
 465 470 475 480
 Ala Ser Pro Gly Phe Gly Leu His Ala Ser Pro Val Pro Ala Cys Thr
 485 490 495
 Asp Glu Ser Leu Leu Ser Ser Leu Asn Gly Gly Ser Gly Pro Ser Glu
 500 505 510

785		790		795		800									
Asp	Glu	His	Leu	Glu	Val	Leu	Leu	Asn	Ser	His	Ser	Pro	Ile	Gly	Lys
			805					810						815	
Val	Ser	Asp	Val	Thr	Leu	Leu	Lys	Ile	Gly	Ser	Glu	Glu	Pro	Pro	Phe
			820					825					830		
Asp	Ser	Ile	Met	Asp	Gly	Phe	Pro	Gly	Lys	Ala	Ala	Glu	Asp	Leu	Phe
		835					840					845			
Ser	Ala	His	Glu	Leu	Leu	Pro	Gly	Pro	Leu	Ser	Pro	Met	His	Ala	Gln
	850					855					860				
Leu	Ser	Pro	Pro	Ser	Val	Asp	Ser	Ser	Gly	Leu	Gln	Leu	Ser	Phe	Thr
865					870					875					880
Glu	Ser	Pro	Trp	Glu	Thr	Met	Glu	Trp	Leu	Asp	Leu	Thr	Pro	Pro	Ser
			885						890					895	
Ser	Thr	Pro	Gly	Phe	Ser	Asn	Leu	Thr	Ser	Ser	Gly	Pro	Ser	Ile	Phe
		900						905					910		
Asn	Ile	Asp	Phe	Leu	Asp	Val	Thr	Asp	Leu	Asn	Leu	Asn	Ser	Pro	Met
	915						920					925			
Asp	Leu	His	Leu	Gln	Gln	Trp									
	930					935									

<210> 32
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 <212> PRT
 <213> Mus musculus

<400> 32
Met Thr Leu Leu Gly Ser Glu His Ser Leu Leu Ile Arg Arg Lys Phe
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Arg Ser Val Leu Gln Leu Arg Leu Gln Gln Arg Arg Thr Gln Glu Gln
20 25 30
Leu Ala Asn Gln Gly Leu Ile Pro Pro Leu Lys Gly Pro Thr Glu Phe
35 40 45
His Asp Pro Arg Lys Gln Leu Asp Ser Ala Lys Thr Glu Asp Ser Leu
50 55 60
Arg Arg Lys Gly Arg Asn Arg Ser Asp Arg Ala Ser Leu Val Thr Met
65 70 75 80
His Ile Leu Gln Ala Ser Thr Ala Glu Arg Ser Ile Pro Thr Ala Gln

95

Thr Pro Leu Ser Pro Val Lys Asn Ser Ile Ser Gly Gln Thr Gly Val
355 360 365

Ser	Ser	Leu	Lys	Pro	Gly	Pro	Leu	Pro	Pro	Asn	Leu	Asp	Asp	Leu	Lys	370	375	380	
Val	Ser	Glu	Leu	Arg	Gln	Gln	Leu	Arg	Ile	Arg	Gly	Leu	Pro	Val	Ser	385	390	395	400
Gly	Thr	Lys	Thr	Ala	Leu	Val	Asp	Arg	Leu	Arg	Pro	Phe	Gln	Asp	Cys	405	410	415	
Ala	Gly	Asn	Pro	Val	Pro	Asn	Phe	Gly	Asp	Ile	Thr	Thr	Val	Thr	Phe	420	425	430	
Pro	Val	Thr	Pro	Asn	Thr	Leu	Pro	Ser	Tyr	Gln	Ser	Ser	Pro	Thr	Gly	435	440	445	
Phe	Tyr	His	Phe	Gly	Ser	Thr	Ser	Ser	Ser	Pro	Pro	Ile	Ser	Pro	Ala	450	455	460	
Ser	Ser	Asp	Leu	Ser	Ala	Ala	Gly	Ser	Leu	Pro	Asp	Thr	Phe	Thr	Asp	465	470	475	480
Ala	Ser	Pro	Gly	Phe	Gly	Leu	His	Ala	Ser	Pro	Val	Pro	Ala	Cys	Thr	485	490	495	
Asp	Glu	Ser	Leu	Leu	Ser	Ser	Leu	Asn	Gly	Gly	Ser	Gly	Pro	Ser	Glu	500	505	510	
Pro	Asp	Gly	Leu	Asp	Ser	Glu	Lys	Asp	Lys	Met	Leu	Val	Glu	Lys	Gln	515	520	525	
Lys	Val	Ile	Asn	Gln	Leu	Thr	Trp	Lys	Leu	Arg	Gln	Glu	Gln	Arg	Gln	530	535	540	
Val	Glu	Glu	Leu	Arg	Met	Gln	Leu	Gln	Lys	Gln	Lys	Ser	Ser	Cys	Ser	545	550	555	560
Asp	Gln	Lys	Pro	Leu	Pro	Phe	Leu	Ala	Thr	Thr	Ile	Lys	Gln	Glu	Asp	565	570	575	
Val	Ser	Ser	Cys	Pro	Phe	Ala	Pro	Gln	Gln	Ala	Ser	Gly	Lys	Gly	Gln	580	585	590	
Gly	His	Ser	Ser	Asp	Ser	Pro	Pro	Pro	Ala	Cys	Glu	Thr	Ala	Gln	Leu	595	600	605	
Leu	Pro	His	Cys	Val	Glu	Ser	Ser	Gly	Gln	Thr	His	Val	Leu	Ser	Ser	610	615	620	
Thr	Phe	Leu	Ser	Pro	Gln	Cys	Ser	Pro	Gln	His	Ser	Pro	Leu	Gly	Gly	625	630	635	640
Leu	Lys	Ser	Pro	Gln	His	Ile	Ser	Leu	Pro	Pro	Ser	Pro	Asn	Asn	His	645	650	655	

Tyr Phe Leu Ala Ser Ser Ser Gly Ala Gln Arg Glu Asn His Gly Val
 660 665 670
 Ser Ser Pro Ser Ser Ser Gln Gly Cys Ala Gln Met Thr Gly Leu Gln
 675 680 685
 Ser Ser Asp Lys Val Gly Pro Thr Phe Ser Ile Pro Ser Pro Thr Phe
 690 695 700
 Ser Lys Ser Ser Ser Ala Val Ser Asp Ile Thr Gln Pro Pro Ser Tyr
 705 710 715 720
 Glu Asp Ala Val Lys Gln Gln Met Thr Arg Ser Gln Gln Met Asp Glu
 725 730 735
 Leu Leu Asp Val Leu Ile Glu Ser Gly Glu Met Pro Ala Asp Ala Arg
 740 745 750
 Glu Asp His Ser Cys Leu Gln Lys Ile Pro Lys Ile Pro Gly Ser Ser
 755 760 765
 Cys Ser Pro Thr Ala Ile Pro Pro Lys Pro Ser Ala Ser Phe Glu Gln
 770 775 780
 Ala Ser Ser Gly Gly Gln Met Ala Phe Asp His Tyr Ala Asn Asp Ser
 785 790 795 800
 Asp Glu His Leu Glu Val Leu Leu Asn Ser His Ser Pro Ile Gly Lys
 805 810 815
 Val Ser Asp Val Thr Leu Leu Lys Ile Gly Ser Glu Glu Pro Pro Phe
 820 825 830
 Asp Ser Ile Met Asp Gly Phe Pro Gly Lys Ala Ala Glu Asp Leu Phe
 835 840 845
 Ser Ala His Glu Leu Leu Pro Gly Pro Leu Ser Pro Met His Ala Gln
 850 855 860
 Leu Ser Pro Pro Ser Val Asp Ser Ser Gly Leu Gln Leu Ser Phe Thr
 865 870 875 880
 Glu Ser Pro Trp Glu Thr Met Glu Trp Leu Asp Leu Thr Pro Pro Ser
 885 890 895
 Ser Thr Pro Gly Phe Ser Asn Leu Thr Ser Ser Gly Pro Ser Ile Phe
 900 905 910
 Asn Ile Asp Phe Leu Asp Val Thr Asp Leu Asn Leu Asn Ser Pro Met
 915 920 925
 Asp Leu His Leu Gln Gln Trp

